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Cutting Costs in Non-Ferrous Plant

Straight-Line Routing and Mechanical Handling Save Labor—Scrap Reclaiming Pays Well

BY BURNHAM FINNEY

COMPACT arrangement of departments so that transportation of material is reduced to a minimum, and provision for the mechanical handling of metals and molds in its brass foundry, are features of the new plant of the More-Jones Brass & Metal Co., St. Louis, manufacturer of brass and bronze castings, solder and Babbitt metals. Reclamation of scrap metal recovered from spillage and from sweepings is another profitable measure of economy introduced. In addition, the finishing department is on a production basis, and castings are completed in multiples instead of in isolated units, a saving in operating costs thereby being effected.

Except in the case of material to be machined, all castings in process of manufacture progress consistently through the plant, and at no point is back-tracking necessary. Whenever machining operations are essential, the only retracing of steps is the movement of castings from the stock department to the machine shop or finishing department, and then back again to the shipping department. Furthermore, the methods utilized in the machine shop have resulted in the salvage in classified form of the cuttings and trimmings, and their re-employment in the same line of work.

Mechanical Handling

In the brass foundry, the entire floor area, 139 x 360 ft., is served by cranes, so that carrying or handling metals by hand has been dispensed with. Two electric traveling cranes, operating over the furnaces, deliver molten metal to the pouring floors throughout the length of the foundry. These cranes are used in charging the furnaces, also.

Electric cranes likewise transport material over the heavy molding floor, where castings weighing up to a maximum of 6000 lb. are made. Especially are the cranes utilized in pouring and in handling the chilled molds, which occupy a considerable section of the molding floor. Altogether, the foundry is equipped with four electric traveling cranes, made by the Curtis Mfg. Co., St. Louis, besides 10 hand cranes and eight gib cranes, the product of the Arcade Mfg. Co., Freeport, Ill. Such transportation facilities contribute

General View of Furnace Section and Brass Foundry. In the initial cut at head of page is shown one of the Schwartz open-flame furnaces

Brass Foundry; General View, Looking South. This is the largest unit in the entire plant, being 139 x 360 ft.

Core Room in the Brass Foundry. Coke-fired core ovens appear in background. Mechanical help in core making is considerable

Machine Shop; General View, Looking North. This department measures 99 x 215 ft. and adjoins the shipping room

Journal bearing castings, which form an item of considerable tonnage in the company's output, are made on Arcade stripping-type molding machines. A large percentage of them, however, are chilled, through the center and through the crown, and are machined on Niles double-spindle car boring machines. They are tinned and lined in gas-fired furnaces under pyrometer control.

The molding floor in the brass foundry is 100 ft. wide and 300 ft. long.

Sand-molded castings are cleaned by sand-blasting machines made by the W. W. Sly Mfg. Co., Cleveland. The equipment includes tumbling barrels, located at the north end of the foundry, next to the grinding department. Castings too large to go through the tumbling barrels are cleaned in a sand-blast room.

After cleaning, the castings are dumped onto hand trucks and taken to the grinding department and thence to the classification bins. However, material which is to be machined goes from the grinders to the semi-finishing department for further work.

At the northwest end of the molding floor is the core department, 30 ft. wide and 80 ft. long. Special machines are used to turn out standard cores, and the processes of mixing, shaping and baking are carried on semi-automatically. For small cores there is a battery of Swartwout core ovens of the swinging door type; for the large cores two batteries of Swartwout ovens of the open-truck type are utilized. All of the ovens are metal-insulated and fired by coke. The heat is controlled by Bristol recording pyrometers.

In the pattern storage vault is an inclosed mezzanine floor for the pattern shop, where new patterns are manufactured.

Particular attention has been given to the ventilating system in the foundry. In the east bay, in which the furnaces are situated, the roof is exceptionally high and has vents so that the heat and gases from the oil-burning furnaces not only pass freely and rapidly from the building, but also produce a syphon action which draws the air currents across the molding floor, freedom from gases and smoke thereby being insured at all times. The roof over the molding floor is of saw-tooth construction. The outer walls of the foundry consist of fenestra sash, and swinging sashes, mechanically operated, assure proper ventilation. The foundry is heated by steam by means of unit heaters, made by the Skinner Mfg. Co., St. Louis, which distribute heat during the winter and circulate air in the summer. The floor is of creosoted wood block with a concrete foundation. The blocks are tarred, so that moisture will not affect the floor.

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Departments in the finishing shop are grouped according to the classification of different alloys. The entire shop operates on a production basis, castings being completed in multiples instead of in isolated units. The result is reflected in the decreased cost per unit. Material is transported on trucks through the shop. The

workman takes from a truck the casting to be machined, and, after completing his particular phase of the job, places it on another truck ready for the next operation. Finishing of material from truck to truck has reduced handling expense to a minimum.

All finishing work is done with the help of micrometers, taps and dies to insure accuracy and to eliminate the possibility of shipping defective castings. In the shop are several machines particularly adapted for special work. Among them are three Acme turret lathes with attachments for machining steam metal work for locomotives, such as valves and cocks. There also is a new machine, designed and built by the Lehman Machine Co., St. Louis, for milling grease grooves in locomotive crown bearings.

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The machine shop is 99 ft. wide and 215 ft. long. Through it pass the electric railway motor bearings, the engine truck and trail bearings and trolley wheels, as well as other standard products demanding machining and finishing operations. The shop is adjacent to the shipping department, so that machined castings while awaiting shipment are stored only a few feet distant from the shop.

Adjoining the shipping department on the south and east is the white metal foundry, 50 x 150 ft. in area. Here the equipment is of the company's own design. It consists of eight cooking and refining furnaces, all of which are gas and oil combination burning. The larger ones are of the syphon pour type. The total capacity of the furnaces is 90,000 lb. per day. In this foundry more than 20 brands of Babbitt metals, as well as all grades of solder, special metals and alloys are made. It is so designed that production capacity can be increased 50 per cent without adding to the present floor space.

Service Departments

Just east of the southern end of the brass foundry is a maintenance repair shop, 25 x 40 ft. Its purpose is to repair small tools and other equipment from all parts of the plant.

Comfort and health of employees have been given attention not only in the design of buildings to eliminate gases and to admit proper ventilation, but also in sanitary provisions. In addition to shower baths, wash rooms and large lockers there are special rooms for drying and deodorizing workmen's clothing. The company operates a cafeteria capable of serving 400, in which food is sold to employees at cost. Furthermore, safety appliances have been installed in all parts of the plant. Organized athletics are a part of the recreational activities carried on for employees.

The entire plant is operated electrically. Current secured on the primary side at 13,200 volts is transformed to 220 volts for distribution to the various departments. The company regenerates direct current

Sand-Blasting and Cleaning Department, in Northeast Corner of the Brass Foundry. Tumbling barrels are in large use

Reclamation Department, Where Even the Smallest Particles of Metal Are Salvaged, Crushed and Washed

Section of Boring and Finishing Operations in Electric Railway Motor Bearing Department of the Machine Shop

The Argentine Government, Buenos Aires, is reported to be considering enlargements in its oil refinery at La Plata. Additional storage and distributing facilities are also planned at Santa Fe, Mar del Plata, and Ingeniero White, with conveying, loading and other handling equipment. The American Consulate, Buenos Aires, Sherwood H. Avery, assistant trade commissioner, has information regarding the projects.

Heinrich Werther, Magdeburg & Werther, Halle a. S., Germany, desires to receive American catalogs on ice machines, ice boxes, baking machines, concrete mixers and oil heaters for house heating.

Industrial Finance

The Otis Steel Co., Cleveland, reports a profit of $735,491 for the quarter ended Sept. 30 after interest and other charges, but before depreciation and Federal taxes. This compares with $524,996 in the second quarter and with $400,112 during the third quarter last year. Profits during the first nine months before depreciation and Federal taxes were $2,149,131, as compared with $1,595,034 the corresponding period of 1925.

The Frankenberg Refrigerating Machinery Co., 345 Jackson Street, Milwaukee, manufacturer of self-contained artificial ice machines, has filed a voluntary petition in bankruptcy. Schedules disclose liabilities of $158,023 and assets of $40,308. Liabilities include $88,070 in time payment notes owed the company, and debts for machinery equipment and materials, largely to Milwaukee concerns. Of the assets, $30,000 is machinery, tools and manufactured stock.

Net earnings of the Superior Steel Corporation, Pittsburgh, for the quarter ended Sept. 30 were $52,970 and for the nine months $276,365.

The net profits of the General Fireproofing Co., Youngstown, Ohio, for the third quarter, totalled $150,134, which is equivalent to $1.85 a share on outstanding common stock. The net earnings for the second quarter amounted to $3.61 per share on common stock, and for the first quarter, $2.44 per share.

Elyria Iron & Steel Co., Cleveland, reports net sales of $1,822,000 for the third quarter of 1926 and earnings, after Federal taxes and other charges, of $183,826. Sales for the first nine months of the year aggregated $4,480,000, as compared with $3,784,000 during the corresponding period of 1925. Net earnings for the 1926 period amounted to $472,622. The statement includes the consolidated earnings of the Superior Metal Products Co., Elyria, Ohio, and the Standard Steel Tube Co., Toledo, which were acquired by the Elyria company during the year.

Ludlum Steel Co., Watervliet, N. Y., reports net income of $62,928 for the third quarter of 1926 after deductions for depreciation, interest, Federal taxes, etc. This compares with an income of $100,611 for the corresponding period of 1925.

Net profits for the fiscal year ended June 30, 1926, of Rimamurány-Salgó-Tarján Iron-Works Co., Ltd., Budapest, Hungary (Rima Steel Corporation), amounted to $308,844.21, after various expense deductions, according to a report accepted by the general meeting of auditors and shareholders held in Budapest, Oct. 30. The company has assets of $11,997,863.20.

New Trade Publications

Air Filter.—American Blower Co., Detroit. Bulletin 2223, of eight pages, devoted to an analysis of the advantages of the American Blower air filter in purifying air and providing adequate ventilation.

Rolling Doors.—Cornell Iron Works, Inc., Long Island City. Catalog of 32 pages gives a general description of types of rolling doors with illustrations; also a history of the Cornell Iron Works, Inc.

Volume and Temperature Meters.—Bacharach Industrial Instrument Co., Pittsburgh. A 12-page leaflet gives reasons for measuring the volume of air in the blast furnace and describes the effectiveness of the blastmeter in such capacity. It also tells ways of taking non-ferrous metal temperatures and describes the use of the Ardometer in the heat treatment of steel.

Gear Speed Reducers.—Catalog No. 200, issued by Foote Bros. Gear & Machine Co., 215 North Curtis Street, Chicago, contains 623 pages of gear engineering information such as formulæ, tables and practical problems covering the design and application of various kinds of industrial gears and speed reduction units. In addition there is such information as mensuration, trigonometric tables, weights and measures, machine shop data and a chapter on electic motors.

THE LAST WORD

(Contributed by the Reader Service Department of the Iron Age Publishing Co.)

"As it seems to be the fashion to name blast furnaces after women, don't you think the Hudson Valley Coke & Products Corporation of Troy, N. Y., should call its stack Helen?" inquires G. L.

Yes, sir, we do. Helen of Troy it is.

Gerard Swope, president of GE, was on the program for an address at a meeting I attended the other night. What type of man was he, and how would he impress his audience? I wondered.

But he had not spoken five minutes before all of us knew that here was a man as big as his job. Though physically no giant, he has the simplicity of a man great in mental stature. Keen, kindly, and tolerant, he makes you believe that he himself believes everything he says.

And at the same time you get the impression that he does not hold his own opinions in holy awe, inviolable as the eighteenth amendment, for example.

In short, he is the kind of a man who might cause you to say, "I don't care whether the company he manages makes motors, mousetraps, matchsticks or mezzo-tints, I would like to own some of its stock."

When handling dynamite avoid acrobatics.

Humor is said to be the lubricant that helps prevent friction in human relations. It can also function in the same capacity as a handful of gravel thrown into a gear box, if it ventures on dangerous ground. To attempt to be funny about a man's religion, his bridge game, or his work is always dangerous.

Better joke about his family tree than to detract from the dignity of his occupation. I recall the editor of an employees' magazine in a large plant, who thought it would be quite comical to write a series of articles burlesquing the various departments in the plant. He told of the difficulties the drill press operators had in getting the holes straight in macaroni. He described how the mighty forging hammers pierced the doughnut to fashion the hole demanded by the fresh air fiends. The micrometrical exactness of the slices of Swiss cheese, pared by the planers for sandwiches served in the factory lunch room, was commended.

The series was a decided success, except among the workers in the departments burlesqued. They seemed to have lost their sense of humor for the time being. They felt the dignity of their work had been lowered, and they resented it. Some of them left. The ruffled feelings of those who remained were not smoothed down for many months. Production was curtailed in an especially busy period. All in all, it was a costly bit of comedy.

The present editor of that magazine is one who fully realizes that you cannot injure a man's pride in his work without reducing his value to his employer.

A. H. D.

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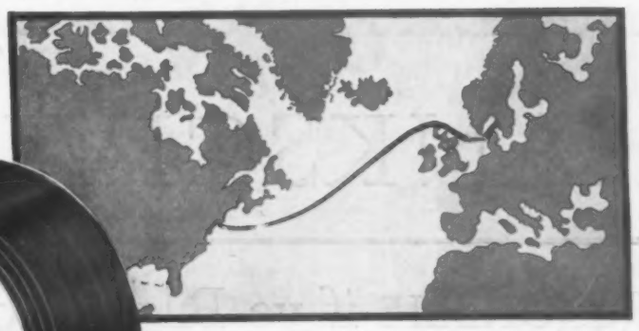

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CLEVELAND
CHICAGO
DETROIT

COURTESY MARQUETTE CEMENT MANUFACTURING CO.

THANKSGIVING

SURELIE if ye Pilgrim forefather and his goode wyfe had cause for Thanksgiving, we of today should give thanks beyond measure for our countrie's prosperitie and the opportunities that are ours

1621-1926

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ESTABLISHED 1842

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Electric cranes likewise transport material over the heavy molding floor, where castings weighing up to a maximum of 6000 lb. are made. Especially are the cranes utilized in pouring and in handling the chilled molds, which occupy a considerable section of the molding floor. Altogether, the foundry is equipped with four electric traveling cranes, made by the Curtis Mfg. Co., St. Louis, besides 10 hand cranes and eight gib cranes, the product of the Arcade Mfg. Co., Freeport, Ill. Such transportation facilities contribute

General View of Furnace Section and Brass Foundry. In the initial cut at head of page is shown one of the Schwartz open-flame furnaces

Section of Grinding Room, Showing How Operators Transfer Material by Trucks from One Job to the Next

Railroad Receiving and Shipping Departments; Track Capacity Within Yards, 20 Cars; Platform Capacity, 9 Cars

Material Classification and Separation. Here material is put through separating machines and scrap is classified

much to the ease with which material moves from one operation to the next, and to the efficiency in production methods which is characteristic of the whole plant.

Small hand-lift trucks are used extensively throughout the plant for transfer of material from one department to another. They are large enough to hold a considerable number of castings, but also sufficiently small to insure ease in handling.

Two railroad switching tracks with platform capacity for nine cars give the plant unusual facilities for the receipt of raw materials and for the shipment of castings. The tracks within the company's yards will accommodate 20 cars and are off the main line of the Missouri Pacific Railroad, which flanks the south side of the plant. Connection with all of the railroads entering St. Louis is made by means of the Terminal Railroad Association of St. Louis, which operates a belt line around the city.

The switching tracks directly serve the coke and sand bins, the oil storage tanks and the bins for foundry supplies. The coke is taken by truck from the yard storage bins, 28 x 34 ft. in area, to the hoppers on the outside of the brass foundry building. From bins occupying a space of 1900 sq. ft. sand is wheeled by hand to the foundry when needed, while oil from the underground storage tanks is distributed throughout the plant by means of a rotary pumping system.

Running 211 ft. along the west side of the railroad receiving platform is the metal-storage building, which is 52 ft. wide and two stories high. It adjoins the east side of the brass foundry, the proximity of the two buildings reducing to a minimum the transportation of metal. All scrap and new ingot metals temporarily are stored there.

Brass Scrap Sorted and Classified

Scrap brass received from railroads is unloaded direct from railroad freight cars onto hand trucks. After being weighed it is taken on electric elevators to the second floor of the metal-storage building, where all of the turnings and cuttings pass through electric separating machines, made by Ding Mfg. Co., Milwaukee, which remove iron. The scrap then, after being assorted, is dumped through openings in the floor into classified storage bins on the first floor. These bins have a capacity of 2,500,000 to 3,000,000 lb.

Heavy scrap material goes to hydraulic breaking machines for fracture and examination before it is used. It then is classified, and the new metals are added to fulfill standard specifications.

Situated conveniently in the metal-storage building and adjacent to the brass foundry, the chemical laboratory tests all material before it is sent to the melting furnaces, and samples castings from various heats.

Reclamation of brass scrap in the plant is an economic policy adopted by the company. All spillage and small particles of metal are recovered from the sweepings. This material goes to the reclamation department, where it is crushed and washed

over concentrating tables. Then it is placed in smelting furnaces for refining.

Formerly it was common practice of railroads to machine their own brass and bronze castings. The cuttings or turnings would be salvaged in bulk and returned to the manufacturer. This method, by mixing various dissimilar metals, rendered impractical the reemployment of the salvaged material in the same kind of castings from which it was taken, and the amount of its depreciation was increased considerably. In the machine shop of the More-Jones Co. many of the castings are machined previous to their shipment to railroads. This practice not only effects a large saving in the cost of handling and transporting the excess material machined from the castings before they are used, but also makes possible the recovery of the material in classified form.

Melting Equipment

In the east bay of the brass foundry are six Schwartz oil-burning open-flame furnaces, two with a capacity of 5000 lb. per heat and four with a capacity of 3000 lb. In addition, there are three oil-burning open-flame furnaces made by the United States Furnace Co., Belleville, Ill. One of these has a capacity of 2000 lb. and the other two of 1000 lb. each.

Supplementing this equipment are 16 underground crucible coke-burning furnaces of the company's own design, each with a capacity of 700 lb. per heat. For small heats of special alloys and for tests and development work there are six underground crucible coke-burning furnaces of 200 lb. per heat capacity. The floor space is ample for adding furnaces when needed, to increase the melting capacity of the foundry to more than 250,000 lb. per day.

Coke hoppers are located on the outside of the foundry building, adjacent to the underground furnaces. When fuel is desired, the coke is fed by gravity through an opening in the wall into the furnaces, which are charged with metal by hand. Pots of metal ready to be poured are lifted and carried by electric hoists on monorails to the pouring floor.

Molding Machines in Large Use

With the exception of castings for which the demand is limited, the practice of multiple molding by means of molding machines and metal dies is followed. Several types of molding machines are in use. Among them are the Arcade stripping jolt squeezer and the Nicholson jolt and electric pattern-drawing machine.

Metal molds used in casting crown bearings and other important wearing parts for locomotives are featured by the company. While the chilling of castings is by no means new, the refinement developed and patented by More-Jones diminishes oxidation from the castings, the tensile strength and elongation thereby being substantially increased. In fact, the patented chilling process is so successful in removing oxidation that the castings do not require cleaning and can be machined in much less time than the ordinary casting.

Journal Bearing Boring and Lining Department. Here, again, the use of trucks for handling material is shown

Section of Underground Furnaces in Brass Foundry. Coke fed by gravity from outside hoppers appears at right

Gravity Feed Coke Hoppers Located Just Outside Brass Foundry. They feed underground furnaces, as shown above

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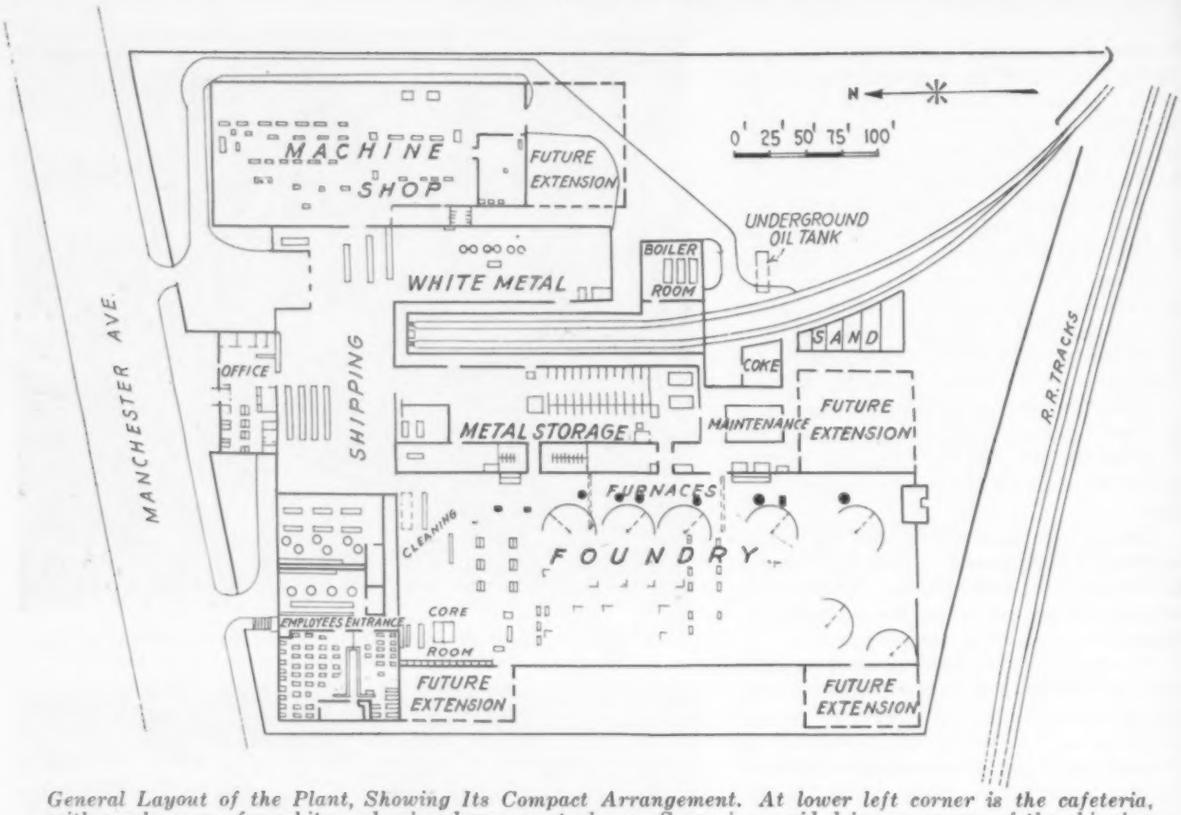

General Layout of the Plant, Showing Its Compact Arrangement. At lower left corner is the cafeteria, with wash rooms for white and colored men next above. Space is provided in one corner of the shipping room to accommodate three automobile trucks at once

power for the operation of its separating machines and cranes. Installation of electric melting furnaces is contemplated in the future.

At the front of the plant a brick building, 39 x 83 ft., contains the general offices. The basement consists of a garage for use of the officers and the office employees. This makes it possible for the men to drive into the garage in bad weather and to reach their offices without being exposed to the elements.

Both the brass and white metal foundry buildings are of steel and brick construction, with fenestra steel sashes and concrete slab tile roofs.

The total area of the plant is 157,000 sq. ft. Since the land possessed by the company is 264,000 sq. ft., or more than 6 acres in area, sufficient space remains for future expansion.

The entire plant was designed by the company and constructed by Fruin & Colnon, St. Louis, general contractors. Klipstein & Rathmann, St. Louis, were the architects. Officers of the company are John B. Strauch, president; Thomas H. Wright, Albert Y. Evins and Samuel W. Crawford, vice-presidents; Raymond S. Herman, secretary, and Joseph A. Neuwirth, treasurer.

Steel Corporation Is Presenting Service Medals to Old Employees

The United States Steel Corporation is bestowing upon each of its employees who has been connected with its plants for 25 years or more a service medal, of silver for those of less than 50 years of service and of gold for those who have rounded out half a century. The medal, as shown in the accompanying illustration, has on one face a portrait bas relief of Judge Elbert H.

Gary, chairman of the corporation's board of directors. The reverse has engraved upon it a corner of a steel mill with men at work, symbolical of the industry. Above this is the inscription indicating the number of years of service.

The medals will be coined to designate service in periods five years apart. Thus the inscription will read "25 Years of Service," or 30, 35, 40, 45 or 50 years. Some of the Steel Corporation's plants will distribute relatively few medals, as their existence does not run back so many years; but in the older mills the percentage of 25-year men is comparatively large.

Discuss Employee Representation Plans

The type of employee representation plan adopted is not of so great importance as is the attitude taken toward it by the management, supervisors and employees. This point was stressed at the third annual employee representation conference of the American Management Association, held Nov. 18 and 19 at the Palmer House, Chicago. It was also brought out that it is wasted effort if a management approves a plan and then neglects to take an active interest in it. Supervisors find that the adoption of a plan is only a first step and that belief in it must be maintained.

The registration at this year's conference was 357, a number in excess of the attendance last year.

Total apparent consumption of babbitt metal in October, based on reports received from 27 firms by the Department of Commerce, was 4,868,053 lb., compared with 5,337,032 lb. in September and with 5,550,247 lb. in October, 1925.

Tax Reform Urged by Founders

National Association Voices a Plea for Reduction of Federal Levy on Corporations and Urges Less Extravagance in State and Local Expenditures

OUTSTANDING features of the thirtieth annual convention of the National Founders Association at the Hotel Astor, New York, on Nov. 17 and 18 were:

Reduction urged in Federal taxes and particularly in the tax on corporations, and restriction of State and local government expenditures.

Work already done to cooperate with farmers' groups in the solving of the common problems of industry and agriculture commended.

Progress reported in industrial educational movements by the committee having charge of that work.

Practical economics of today discussed by M. C. Rorty, vice-president International Telephone & Telegraph Co., New York, former president of the National Bureau of Economic Research and the author of "Some Problems in Current Economics."

Country's tax problem, Federal, State and local, reviewed by James A. Emery, Washington, counsel of the association.

There were other features, including a discussion of the work of the United States Patent Office, an illustrated explanation of the work which has been accomplished by the Division of Simplified Practice, Department of Commerce, in the elimination of unnecessary sizes, styles and varieties of many commodities, and discussions of practical foundry problems, such as cost accounting, natural light and ventilation and artificial lighting.

President Barr Has Served Since 1913

William H. Barr, Buffalo, was again elected president. having served the association continuously in this office since 1913, an unusual record in trade association affairs. In an adjoining column are the names of all of the officers and members of the Administrative Council.

Reviews History of Association

IN his opening address Mr. Barr took occasion, it being the association's thirtieth birthday, to review the history of the organization. Sixteen foundrymen formed the charter membership list and the first president was W. H. Pfahler of the Abram Cox Stove Co., Philadelphia.

"It was the culmination of the tyranny of the International Molders Union," said Mr. Barr, "which had necessitated and forced this organization into being, and we owe an immense debt of gratitude to these original sixteen resolute and gallant gentlemen who by their vision and determination laid the foundation that makes it possible for the foundry industry of today to operate under the American plan of the open shop.

"It is true," he added, "that before the enlightened spirit of modern industry had fully developed workers did need organizations, because employers—a few of them with an unfortunate lack of vision—took advantage of their employees' economic necessity. The corrective, however, has been applied in our industry, and as a result unionism in the foundry is steadily declining. The corrective is that equitable spirit of unlimited opportunity when dealing with our workers, of which the National Founders Association was a pioneer and promoter.

"Should the National Founders Association ever become an instrument of oppression, promoting what might seem to be the selfish interests of its members, it would then begin a period of ineffectiveness. This association should ever be guided by the spirit of our people, who are above all else fair minded, and we should remember that a wrongful strike has rarely been won by the unions against public opinion, and a strike called where the equity was with the unions has seldom been lost.

"It is a long fight to educate union workers to the idea that labor saving inventions and machines do not interfere with their livelihood. Unionism has consistently fought the introduction of modern methods in every business, in every part of industry throughout the United States and throughout the world. That is one reason why industrial unionism in this country always retards industrial advance. Union leaders are blind to economic developments, suspicious of all but themselves, seeking only to maintain their own power and without vision as to the future. As a matter of fact, the splendid conditions existing among the molders of the United States today are due to the open shop installation of labor saving engineering, made possible by our association, transferring the work in most cases from the muscles to the brain. Without those aids we should be plodding along today as a third rate industry and our part in the development of the United States as an industrial nation would still be in the future. The lack of vision which unionism displayed in the early history of our association, as it displays now in other matters, is an object lesson to employers. We must consistently avoid selfishness and the mere concentration of power.

"There has been much public discussion of the reasons for the unprecedented prosperity of our country. Commissions from other lands have come here to learn the secret. They are substantially agreed that our success is due to the high efficiency of our industry which makes possible the phenomenon of low production cost upon the one hand and a high wage scale on the other. The efficiency of American industry is due to the confidence and cooperation of the American worker, to the freedom of American management from the restrictions of hostile unionism and socialistic governmental regulation which hamper our foreign competitors, and to unprecedented extension in the use of labor saving machinery. These things are in turn due to the open shop policy of American industry and to those progressive policies and activities which I have touched upon and in the adoption of which our association has been a leader. We are glad that those policies have been so widely accepted. To abandon them now would be not merely for our association to abdicate a position of well earned leadership. It would mean our falling out of the ranks and remaining not even abreast in the march of progress."

In conclusion Mr. Barr said that the members of the association must always devote themselves to the welfare of their workers. "That welfare," he said, "does not consist of establishing uneconomic conditions or temporizing with conditions that may exist, but rather in fairness than in kindness, in equity rather

than in coddling, and in careful recognition of the mutual duty existing between employer and worker. As a group we stand for the liberty of all industry, the independence of employers and the equal independence of all workers. In maintaining this faith we shall increase in public service and be an important unit in the great industrial machine working always for the prosperity of our nation."

Few Labor Difficulties in Past Year

LABOR troubles were at a minimum in the past year in the shops of members of the association, according to Commissioner A. E. McClintock. Only three shops required the assistance of the association in the year in the combating of strikes. The molders' union, Mr. McClintock said, has not been aggressive during the past three or four years. His report in part follows:

"In checkmating the efforts of union organizers many of our members report the stabilizing influence of the non-union individual contract. This contract is based on the Hitchman Coal & Coke Co. decision by the United States Supreme Court, which established the right of an individual to make an agreement with his employer to remain out of a union. A union organizer attempting to induce an individual by any means whatever to breach the agreement is interfering with a property right and liable for damages.

"Probably at no other time in this country's history has so much thought and effort been given to the betterment of industrial relations. On every hand are evidences of an earnest, sincere desire on the part of management to assume its duty of the industrial leadership of the people in its employ to the end that greater individual production may be had and greater rewards flow to those engaged in a common enterprise. Larger and larger numbers of industrial workers are coming to realize that it is only from the salable product that those engaged in industry can hope for reward, and union rules and restrictions that make for waste and increase the cost of service do not benefit the individual worker.

"As an industrial people we are thinking less in terms of hourly wage rates and more in terms of unit cost of product, and out of it all is being gained a weekly pay envelope that is the marvel and envy of those of other nations.

"It was not so many years ago that England was looked to as the workshop of the world. It was the boast of trade union leaders that 95 per cent of all its industrial workers were unionists. Probably no other people have ever worked out in greater detail a plan for restricting effort and lessening individual production in the hope of making jobs for all. The coal strike in Great Britain is an apt illustration of a union's effort to make the parts greater than the whole.

Apprentice Training Growing

"There are many evidences of a growing interest in foundry apprentice training. The committee on industrial education is dealing with a difficult, but important problem, and I am sure is greatly encouraged by the increasing number of members who are lending their cooperation. Making a foundry a more attractive work place for apprentices, likewise makes it more attractive for all employees—it places the trade on a higher level.

"Our membership this year is 517 as against 524 last year. We had 35 resignations, nearly all due to financial difficulties or retirement from the business."

Business Cycle Theory Chief Bogey Man of Business

DESCRIBING the business cycle theory as "the chief bogey man of business," M. C. Rorty, well known economist and vice-president International Telephone & Telegraph Co., New York, said that the growing concensus of opinion among practical economists is that "there is no such thing as a business cycle in the sense of there being a more or less necessary or regular oscillation of business above and below normal."

Mr. Rorty is a fellow of the American Statistical Association, a former president of the National Bureau of Economic Research and the author of "Some Problems in Current Economics," published in 1922.

"If we bar war and pestilence and deal only with those causes internal to business itself," said Mr. Rorty, "it seems rather clear that no serious depression can come unless it is preceded by a period of over-expansion such as we had in 1907 and 1919-20, with prices skyrocketing, money tight and labor in excessive demand and correspondingly inefficient. Such a condition inevitably leads to the old-fashioned business cycle, with a quick, hard drop in business activity, lasting perhaps for 12 months, and with a gradual recovery thereafter, lasting for perhaps 24 months longer. This type of cycle has a minimum total length of about 36 months, although the average length is nearer three and a half years.

"The signs of an approaching crisis of this kind are now so well known and have been so often described that I see little danger today that any reasonably careful business man will be caught unprepared by such a depression. In fact, there is a chance that the business world is now so well trained to watch the business

Administrative Council of the

Standing, from left to right: Walter Perry, Farrel Foundry & Machine Co., Ansonia, Conn.; Frank J. Eppele, Trenton Malleable Iron Co., Trenton, N. J.; Robert E. Newcomb, Worthington Pump & Machinery Corporation, Holyoke, Mass.; R. J. Redmond, Buckeye Foundry Co., Cincinnati; W. C. Trout, Lufkin Foundry & Machine Co., Lufkin, Tex.; Frank Myers, Poughkeepsie Foundry & Machine Co., Poughkeepsie, N. Y.; D. F. O'Brien, A. P. Smith Mfg. Co., East Orange, N. J.; O. P. Briggs, honorary member, Minneapolis; C. S. Koch, Fort Pitt Steel Casting Co., McKeesport, Pa.; H. N.

barometers that we may possibly have seen the last of these old-time depressions arising out of reckless and unregulated business expansion.

"This does not mean, however, that there will not be future fluctuations in business activity. We may hope, nevertheless, that these fluctuations will not be the former wide swings above and below the so-called normal line, but will be more in the nature of a series of bounces down from a level of maximum production, just as a toy balloon might bounce up and down against the ceiling of a room.

"A further approach to a general agreement among practical economists is that it is not possible to forecast these shorter and less violent fluctuations in business with any degree of accuracy. The old major fluctuations could be forecasted with considerable accuracy: the new minor fluctuations are much more difficult to forecast. I have been asked very frequently in the past few months to forecast the movements of the stock market and of business. In each case I have contented myself with saying that we have nowhere to go but down, and no special reason for going down. I believe that the best analysts of business conditions are now more concerned with determining just exactly what our real position is at any given moment than with attempting to forecast the future. In other words, to return to my previous simile of the toy balloon bouncing against the ceiling, they feel that if they can state just what the position of the balloon is at any moment and just which way it is moving and how fast, they have done all that business men should expect them to do. And so I would say to you now, the balloon is against the ceiling, but it is not flattened out as though it had come up against the ceiling with a violent bump, and there is no reason why it should bounce back violently, although the chances are that it will drift downward somewhat during the next 12 months.

"This sort of forecast, if it can be made with accuracy, has a very positive and definite use to business men; and it is even possible to go a step further by making a more generalized forecast for a longer period.

"Industry today . . . is active, but without signs of that over-expansion which would forecast a radical depression. Prices, in particular, are showing no signs of skyrocketing. The flow of money from this country into foreign loans and investments appears to be sufficient to prevent the development of any serious adverse trade balance. The farmers will tend gradually to turn toward free trade and their efforts to secure lower tariffs may be seconded by those manufacturing groups which are interested in export trade —but no harm will come from this movement if manufacturers as a whole will take counsel of Alexander Hamilton, rather than of the more fanatical advocates of protective tariffs, and will seek to regulate tariff reductions within sane limits, rather than to oppose them entirely.

Business Prophets in Awkward Plight

"A rather curious feature of the present business situation is the awkward plight of the business prophets. As the New York *Times* said in an editorial on Monday of this week, 'The humble statistician has become lord of the business cycle, and sometimes it has gone to his head.' However, the business prophet's greatest difficulty is not in keeping his head, but in keeping his reputation. Business prophets are listened to so attentively nowadays that, when they all predict a decline in business, business takes its due precautions and the predicted decline does not materialize or is very much minimized. This helps business, but, as you can imagine, is rather hard on the prophets. It may be for this reason that the business prophets I happen to know are becoming chary of making prophecies for the near future and are shifting to the making of forecasts for more distant dates.

"Among these long time forecasts, estimates of the future trend of general price levels are not the least interesting. The answer depends, of course, on whether the gold mines which can operate under present costs for labor and supplies will produce more or less gold than is required to maintain present price levels. If they produce more gold than is required, there will be a gradual expansion of currency and bank credit throughout the world and prices will rise until the increased cost of operating the gold mines tends to check gold production and restore the balance. In the reverse case, currency and credit will tend to be contracted and prices will fall until the cost of gold production is reduced and an increase in gold output is thereby brought about.

"At the present moment the problem of long term price trends is much complicated by the steps being taken to restore gold convertibility to many currencies which have been suffering from the war and post-war inflation and depreciation. The manner in which this program of stabilization is carried out, and particularly the basis established for gold reserves, will probably be the determining factor in the trend of prices for the next few years. I am quite certain that the banking authorities who are involved in these decisions wish to make them in such manner as to stabilize prices, if they can, at present levels. For the next four or five years, therefore, I should expect to see minor fluctuations in prices, but no pronounced upward or downward trend.

"Beyond a five-year period, however, new factors are apt to develop which may swing the general price level in either direction. When this time comes it is possible that we must look to some device like Professor Fisher's plan for varying the gold content of the dollar, if we wish to secure that very great ad-

National Founders Association

Strait, H. N. Strait Mfg. Co., Kansas City, Kan.; H. E. Muchnic, Locomotive Finished Material Co., Atchison, Kan.

Seated, from left to right: Frederic Crosby, American Hoist & Derrick Co., St. Paul, Minn.; C. E. White, Deere & Co., Moline, Ill. (not on council); S. W. Utley, president American Foundrymen's Association; William H. Barr, president National Founders Association; L. R. Clausen, vice-president National Founders Association; W. A. Griswold, Gray & Dudley Co., Nashville, Tenn.

vantage to business which results from reasonably stable commodity price levels.

Growth in Physical Production Not Uniform

"Before leaving the subject of economic predictions, there is one line of studies of special interest, to which attention is just beginning to be paid. We are all so used to thinking of an annual increase of 3 to 4 per cent in physical production in the United States that we sometimes forget that this increase is not a uniform increase for all industries, but is a composite of widely varying increases for established industries plus certain more or less spectacular developments in the way of new industries. We have all seen the sudden growth of the automobile, radio, telephone and moving picture industries; but we may not realize that they, together with a large part of the activity in the building of new and better homes, represent successive steps in the utilization of our constantly increasing per capita production. We also may not realize that this picture has its reverse side in those industries which are settling into conditions of slow growth, which in some instances may not even equal the rate of growth of the country's population. The cotton textile industry is typical of this class, and would be in even worse state than it is, were it not for the development of new uses for cotton textiles in the electrical and other industries.

"A somewhat similar condition exists with respect to pig iron, the production of which is being more and more affected by the remelting of steel and other scrap. Furthermore, the output of copper is quite certain to follow a similar course, perhaps with an even more striking check when the present activity in electrical development slows up and this country and the world as a whole approach more closely to a static population. When this tendency shows up it can be halted only in part by declining copper prices and the development of new uses for the metal.

Wage Studies and Their Value

"Now, I suspect that I have said quite enough on the subject of economic predictions, and may very properly discuss certain economic studies which bear upon current day by day business and industrial operations. One of the most important of these studies relates to the percentage of the product of industry which is paid to wage earners. The studies of the National Bureau of Economic Research have been quite conclusive in this respect, and have been generally accepted by the majority of labor leaders, as well as by professional economists. These studies indicate that in the period from 1909 to 1918, inclusive, slightly more than 70 per cent of the product of the large, highly organized industries was paid in wages and salaries, and something less than 30 per cent was paid to management and capital. This relative distribution, I might add from my own observations, is apparently quite constant from year to year over long periods, and furthermore does not vary greatly from country to country. In countries where interest rates are high, the amount invested in industry per worker is apt to be low, and vice versa, so that the percentage of the total product which accrues to capital and management is, to a large extent, independent of interest rates. Any one of you can check this distribution very quickly in his own business by determining the ratio of interest, dividends and undistributed surpluses for any year, or series of years, to the total salary and wage payments. In general, it will be found that the total of these items does not exceed 40 per cent of the payrolls. Furthermore, it will be found that the total of the higher salaries, and by these I mean salaries exceeding three times the average wage, does not ordinarily equal 5 per cent of the total payrolls.

"The establishing of such figures and ratios represents a very tangible service rendered by the economists to business men, and has its greatest value in the support that the figures give to the productivity theory of wages. If the percentage of the product of industry which goes to labor is as large as has been indicated, and if this percentage is substantially constant from year to year, then it follows, as a matter of course, that increased productivity per worker will mean increased real wages, and vice versa. It is from this particular angle that the studies of the National Bureau have been of special value through establishing the productivity theory of wages on a sound basis in the United States, and making possible in this country the willing acceptance of the principle of high productivity, as compared with the grudging acceptance or utter denial of this principle in most foreign countries.

"It is largely owing to this recognition of the direct relation between wages and production that the initial suggestion of a five-day working week has been presented in a form which does not do absolute violence to the economic facts—although I do not need to tell you that the agitation for the shortened week may frequently take the form of a demand for the reduced working hours at the old wage, without a corresponding increase in production.

Predicts Five-Day Week May Come

"Nevertheless, I suspect that some day we shall have the five-day week. During the past few years, as I have said once before, we have been using our increased per capita income for the purchase of automobiles, radio sets, moving picture tickets and improved housing. But, sooner or later, I imagine that we shall divert much of our increased productive efficiency to the purchase of greater leisure. To a considerable extent we have done this already, and the tendency will probably increase as time goes on. Yet I believe there is a definite and not wholly frivolous counter-proposition which should be made early in the discussion. This proposition is that we should begin the process of shortening the working week by celebrating all holidays on the nearest Saturdays. I cannot believe that it will ever be good for any of us to work less than five days a week, and, if we add to the five-day week the celebration of a constantly increasing number of legal holidays, we may be headed rather rapidly toward that happy time when we shall all live on the interest on our debts.

"While I am speaking of the five-day week, it is of interest to note that the demand for the shorter week is coupled with the suggestion that our production normally tends to outstrip our power of consumption, and that we must raise wages arbitrarily to create consuming power, and must provide added leisure in order that we may have time to find new ways of spending our money. The facts of the case are quite to the contrary. There may occasionally be unbalanced production, particularly when industry is expanding recklessly under the stimulus of an artificial boom, or when the normal currents of trade, either domestic or foreign, are disturbed by war or other general economic upheavals—but, under normal conditions, there never can be any general overproduction of useful goods. Consumption tends automatically to balance any normal development of production, no matter how great such development may be. This is a matter of fundamental economic law, of which the truth has been very tangibly demonstrated by the ease with which we have absorbed our recent great increases in production in the United States. Wages must increase as per capita production and consumption increase—but the increase in the wage is the result of the increased flow of commodities and not the cause of it. Furthermore, any action, such as an excessive shortening of working hours, which reduces the total of production, will just to that same extent reduce the total of consumption.

Effect of Working Hours in International Competition

"Among the more recent of these economic fallacies is the claim that, if the 8-hr. day or the 44-hr. week is not made universal, those nations which adopt it cannot compete in the world's markets with nations which maintain longer working hours. The facts of the matter are that, in the long run, each nation produces those things which it can produce most effectively, and, if it must sell them in the world's markets, it does so at the world market price, and lives on the proceeds. The nation that produces the most per man will have the most to divide; but this does not mean that the nation which restricts production is injured by the nation which does not do so. If a 9-hr. day is harmful

by increasing the production of one nation in comparison with another, the same argument may be advanced with much greater force against the introduction of labor saving machinery; and it would be quite as appropriate for the International Labor Office to attempt to protect the workers of one nation from competition by another, by restricting the use of labor saving machinery, as by its present movement for the universal 8-hr. day. I believe that we should gradually come to a reasonably short working day—perhaps 8 hr. in the larger cities and 8½ or 9 hr. in the smaller cities and country districts. But I dislike to see this change advocated on the basis of a glaring economic fallacy.

Immigration and Its Restriction

"Another question, which, perhaps more than any other, is confused by passion and prejudice, is that of immigration. Yet, here again, there is a close approach to agreement among practical economists. I think you may accept it as a fact that if the immigrants to our shores, as a class, were similar in type and traditions to the typical backbone of our existing American population, we should have no more to fear from unrestricted immigration from foreign countries, than from the free movement of population and of workers between the individual States of the Union. An illustration of this fact may be seen in the conditions which exist as between western Canada and the northwestern United States. Population interchanges of this kind, broadly speaking, do not tend to lower standards of living or to create troublesome social and political problems. From an economic standpoint, the American industrial system can absorb new immigrants with the same facility with which it absorbs, each day, approximately 2000 native born workers, newly grown to working age. It even seems probable that the tendency of immigration is to reduce, rather than to increase, the percentage of unemployment during periods of business depression, since immigration records show that the landings of immigrants in the United States decrease very promptly during a period of depression, and increase during a period of high business activity.

"The objections to immigration are, therefore, primarily social and political, and are economic only in a very broad sense. A nation which is aiming at a high standard of civilization and welfare, and which, consciously or through the instincts of its population, is tending to restrict population growth within limits which will permit high standards of individual comfort, should no more think of permitting unrestricted immigration than a farmer should think of refusing to cultivate his field of corn. Unthinned human corn is nothing better than cannon fodder; and unthinned human corn plus unhoed human weeds represent a rather precise picture of what this country might come to with unrestricted immigration. On this particular question you, as manufacturers, can, I think, very well work hand in hand with the labor unions. A reduced inflow of manual labor may require the introduction of some added labor-saving machinery and may tend slightly to increase the relative wage of unskilled as compared with skilled labor; but I believe the ultimate effect on your operations and your rates of profit will be negligible. Furthermore, our American industrial system is increasingly becoming based on the idea of a self-respecting and mutually advantageous cooperation between employers and employees.

America's Position in International Trade

"It may be appropriate for me to say a few words regarding the position of the United States in international trade. One of the significant developments since the war has been the tendency for such trade to flow back into its old channels. About four years ago, when the English coal troubles first became serious, I was called indirectly into consultation by a group of soft coal operators who were considering the possibility of a consolidation, and were counting particularly upon their ability to take over a considerable proportion of the old British trade in soft coal. My answer to this proposition was the very simple one, that, whatever England's difficulties might be in coal production, coal was, nevertheless, one of the articles she could produce and distribute with greatest efficiency. In the long run, therefore, I felt it to be a certainty that England would produce and sell coal at whatever price it would bring in the world's markets, and would live on the proceeds, whatever they might be. The English coal trade has now suffered for so long a period that it may take it some time to recover lost ground when the present difficulties are over; but, in the end, I think it will be found that English coal will move out over the world in about its pre-war volume.

"The same reasoning, which I have applied to the movement of English coal, applies in a general way to all international trade. Countries which are dependent upon international trade for their means of subsistence must sell something or starve. In the long run they will sell those things which they can produce to best advantage. The question is not whether they can produce such articles more efficiently than the rest of the world; it is simply whether the articles in question are the articles which the exporting country can produce more efficiently than other articles. If the country in question is an inefficient producer of the things which it produces best, it will have low wages and a low standard of living. If it is an efficient producer of such articles it will have high wages and a high standard of living. But, regardless of whether it is industrially efficient or inefficient, it will still continue to sell its goods at whatever prices it must take to secure a market. This underlying law is what gives a great element of permanency to international trade movements and channels. It also determines the peculiar position of the United States in international trade. The American manufacturer does not have to sell anything in international markets, and the result is that he finds international markets for his products only in those cases where he has attained a higher degree of manufacturing efficiency than any foreign competitor. If, through a gradual and sanely handled lowering of our tariff barriers, we could reduce our wages and price levels in equal proportion, our range of possible world sales might be somewhat increased—but in the long run our exports of manufactured commodities will be limited to those articles in which hand labor is a minor

"AS a group we stand for the liberty of all industry, the independence of employers and the equal independence of all workers. The membership of this association must always devote itself to the welfare of its workers. That welfare does not consist of establishing uneconomic conditions or temporizing with conditions that may exist, but rather in fairness than in kindness, in equity rather than in coddling, and in careful recognition of the mutual duty existing between employer and worker."—President Barr to the National Founders Association.

element and a high technique is combined with quantity production and a liberal use of automatic machinery.

Order Coming Out of Industrial Revolution

"Day by day, during the last two or three years, there has been growing up, first the hope, and then more nearly the certainty that here in the United States, in this present time, the industrial revolution, after running its course for 150 years in blindness, ignorance and misunderstandings, is coming at last to a sane and orderly fulfilment.

"To this end there are many factors which have contributed—the Federal Reserve Banking System, the high and constantly increasing efficiency of our systems of transportation and communication, the rapid development of electric power, the growth of a tested science of management, the work of the Department of Commerce in simplifying and standardizing many products and trade practices, and the intensive work of research done by an increasing number of our larger industrial organizations.

"But back of all these factors lies a more fundamental thing, which is the development in the United States of a group of men who combine sound economic knowledge with a practical viewpoint and, in many cases, with power of position, in a manner that is unique in the world's experience.

"In the field of international economics I have only to name Owen Young and S. P. Gilbert of reparations fame, Governor Strong of the Federal Reserve Bank of New York, Professor Kemmerer, who is reconstructing the banking and currency system of one country after another, and Jeremiah Smith, who came into sudden notice as the financial adviser of Hungary.

"In the domestic field, the list of competent economic workers is so long that it would be invidious to select from this number. There is today hardly a great bank or industrial corporation in the United States which does not number a competent economist among its officials of high rank—and you have all seen the advantages of having a man skilled in economics as Secretary of the United States Treasury and still another great economist as Secretary of Commerce."

Progress Made in Industrial Educational Work

FOUNDRY apprenticeship shows commendable growth, according to the report of the committee on industrial education. The report was read by C. S. Koch, Fort Pitt Steel Casting Co., McKeesport, Pa., vice-chairman.

The number of young men being trained as molders and core makers, said the committee, has been increased within the past two years by about 140 per cent. The number of centers in which foundry apprenticeship programs are operating and the number of public school centers cooperating in apprentice training show growth of about 100 per cent.

Milwaukee has been joined by Pittsburgh, Boston and Newark districts in planning systematic cooperative apprentice training programs. Philadelphia, Indianapolis and the tri-cities of Moline, Rock Island and Davenport report general apprenticeship organization of which foundry apprenticeship is a part. An excellent beginning, it was reported, has been made in Chicago and there are indications that within the next year considerable progress will be made in New York.

Schools and colleges have shown increased interest in foundry instruction. Sixty-four educational institutions, including universities, colleges, high schools, trade schools and continuation schools, are now offering instruction to 2805 students. It was pointed out that a majority of these students are in engineering courses and are not expected to become molders or even foundry foremen, yet the instruction in foundry processes which these engineering students receive will, it is believed, react favorably on the foundry industry. The committee has cooperated with these schools and plans are under way for standardization of foundry instruction in high schools and trade schools with a view to better coordination of instruction with industrial requirements.

Plant managements, it was reported, are showing increased appreciation of plant foremen's meetings as mediums of industrial development. Foremanship training has expanded as a variety of agencies, including Federal and State bureaus, colleges and city schools have become interested. Within the next year the association's committee will prepare a series of discussions of foremanship topics which will follow the objectives of the association and be adaptable to local situations.

Supplementing the report of the committee was an address by L. A. Hartley, director of industrial education for the association. Our industrial development in the United States has been too rapid, Mr. Hartley pointed out, for the public school system to keep pace with it. And at the same time the enrollment in the public schools has grown at a rate which has given educators many problems to cope with. He cited figures showing that in 1880 only 45 per cent of all children of school age in the United States were enrolled in the public schools, whereas in 1925 the enrollment had increased to 82 per cent of all children of school age.

Illustrating the desire of boys to fit themselves for the professions or occupations other than the mechanical trades, Mr. Hartley cited a questionnaire submitted to more than 10,000 boys of about the ages of 14 to 16, asking them as to their choice of a life work. The result showed a very small percentage interested in the mechanical trades and an extraordinarily large percentage interested in professional careers. The point emphasized by Mr. Hartley was that the already overcrowded professions are the most alluring to the growing boy who is beginning to think of his life work, while the mechanical trades, with a much larger capacity for absorption of capable workers, are not attractive to the extent to which opportunities exist. One of the purposes of the work of the association's committee on industrial education, of which Mr. Hartley's work is a part, is to foster a greater interest among boys of school age in entering the mechanical trades. The apprenticeship plans being worked out in cooperation with public schools are looked to as at least a partial solution of the problem of attracting boys to the shops rather than to the professions.

Urges Further Tax Relief

Commending the progress that has been made by the Federal Government in reducing taxes, James A. Emery, Washington, the association's counsel, said that whatever gains had been made in that direction had been equalized by the increasing State and local taxes, due to reckless expenditures. He advocated a reduction in the Federal tax on corporations, a recommendation that was embodied in a resolution adopted by the convention at its closing session. He pictured the change that has come about in recent years in the widely diffused ownership of the country's largest corporations, citing the growth from 4,400,000 owners of corporate stock in 1900 to about 19,000,000, the estimated number today. Progress in the industrial life of the nation, he asserted, is dependent on the ability of the large producers to lay aside some surplus, for it is only from surplus that plant or other expansion can come. The proportion of corporate wealth that the Government takes in taxes, Mr. Emery declared, is too great in view of the fact that at no time within the past ten years have more than two-thirds of the corporate organizations showed any net income.

Growth of the United States Patent Office

Thomas E. Robertson, United States Commissioner of Patents, told an interesting and romantic story of the growth of the Patent Office since it was started in the early days of the republic with one manager, a clerk and a messenger boy as its sole force. Today the Patent Office has 1200 employees, an insufficient num-

ber, Mr. Robertson declared, in view of the fact that, of the 1,600,000 patents granted in its life, one-eighth or 200,000 have been granted in the past five years. Not long ago it took fully a year for a patent application to pass through the office; this has now been shortened to six months, but Mr. Robertson said the work is still hampered by inadequate help, inadequate remuneration of examiners and occupancy of a building 80 years old and not suited to present-day methods. Commissioner Robertson said that the pay of examiners in the Patent Office is so low that the turnover amounts to about 25 per cent a year, which means that many green men are constantly being trained, and this factor slows up the work.

Light and Ventilation in the Foundry

Clarke P. Pond, vice-president in charge of engineering-sales David Lupton's Sons Co., Philadelphia, manufacturer of factory sash, showed the progress that has been made in the securing of proper natural light and ventilation in the foundry. The earlier types of foundry buildings, he said, were merely umbrellas to protect the workers against the elements, but the modern building recognizes the value of sunlight and fresh air for the foundry worker. The latest types of ventilating devices for the foundry, Mr. Pond said, are automatically controlled in such a way that the system works to purify the air where purification is most needed—that is wherever the gases collect—and this is done with an avoidance of draft. By direct and indirect heat radiation the gases are forced out of the buildings and are not chilled and returned to the floor. Mr. Pond said that it is practical to remodel old foundry buildings so that modern ventilating methods may be employed. He said that better light and ventilation in certain foundries had produced a notable check on absenteeism due to colds and other illnesses.

Proper Artificial Lighting Important to Foundry

It is doubtful whether more than 15 per cent of the foundries in the United States apply artificial light in such a manner as to derive the benefits most economically, said W. H. Rademacher of the Edison Lamp Works Division, General Electric Co. He said it had been proved conclusively by careful tests that by increasing the intensities of light required for foundry operations production can be increased. This, he said, may be attributed to the more rapid physical response which comes with quickened vision, the reduction in spoilage which comes with more accurate vision and the mental alertness which comes from a bright and cheerful atmosphere.

Mr. Rademacher recommended the following minimum standards of economic lighting:

Recommended Intensities

Class of Work	Foot-Candles
Charging furnaces	5
Floor molding and core making	6
Bench molding and core making	10
Casting, shaking out	5
Cleaning, chipping, tumbling	5
Annealing	5
Raw stock storage	1.5
Pattern storage	3

He offered the following explanation of principles which should govern proper lighting of the foundry:

"In applying incandescent lamps to obtain these intensities, it is essential to bear in mind that the lamp is essentially a producer of raw material—light which must be properly placed and controlled to be most effective. The management of many foundries often in their desire to provide higher intensities, and even in plants where this factor has received no consideration, apply lamps in such a manner as to create a condition which is described as glare, and undoubtedly is one of the greatest evils known to the art of illumination. Glare is misplaced light. It is not, as sometimes described by the layman, too much light. Glare is prevalent in many underlighted plants. In fact, glare and underlighting seem to go hand in hand.

"The filament of any incandescent lamp is much too bright, too dazzling, to be viewed directly at close range and a lamp located so that its filament is visible from ordinary positions of observation actually destroys vision, induces eyestrain, and is a constant menace to safety.

"Protection from glare and the control of light rays may be readily accomplished by the application of reflectors. In the selection of reflecting equipment for foundry lighting, as in the case of other apparatus, the requirements of durability, efficiency and ease of maintenance should be borne in mind.

"Experience has proved that steel reflectors having a porcelain enameled reflecting surface are usually most satisfactory, while in some cases prismatic or mirrored glass units are well adapted. Such equipment is impervious to the action of corrosive fumes

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which arise from certain processes. Equipment having aluminum or paint finished reflecting surfaces is unsatisfactory, due to its rapid discoloration and depreciation. The dome type porcelain enameled reflector provides a good spread of light and cuts off the direct rays from the lamp filament so that the source cannot be seen from ordinary positions.

"The prismatic and mirrored glass reflectors find usage where units must be mounted very high, and where a concentrated distribution of light is desirable.

"For very low mounting the deep bowl porcelain enameled reflector is advisable because of the sharper cutoff and better eye protection which it affords. Frequently where buildings are very narrow, or where high intensities are required on the vertical, angle type reflectors are found advisable.

"Modern practice favors the use of what is known as general lighting. While this method is not universally applicable, it is undoubtedly most effective and economical for the majority of foundry operations such as furnace charging, average floor molding, casting and shaking out, cleaning, chipping, tumbling, annealing and storage.

"It consists of the mounting of units overhead and, insofar as possible, symmetrically arranged to produce approximately uniform illumination throughout a given area. Under such lighting a workman may move from place to place with clarity of vision and physical safety. Dark spots are eliminated and shadows minimized.

"This method of lighting, while having none of the disadvantages of local lighting, has the further advantage of lower installation cost and greater efficiency. Fewer outlets are necessary to light a given space and one large lamp of high unit efficiency may take the place of a number of small lamps of relatively low efficiency. For example, in a local lighting system we might find four 50-watt lamps being used to illuminate certain work. Four such lamps at 27c. would cost $1.08. Four such lamps, each giving 520 lumens or units of light, would give a total of 2080 units of light. One 200-watt lamp, a single unit consuming the same energy as the four smaller ones, would cost 80c., and would give 3200 units of light. The single unit, in other words, would represent a saving of 26 per cent in initial lamp cost with an increase of illumination of 53 per cent. In addition, would be a very substantial saving represented by much lower reflector, outlet, wiring and maintenance cost."

Cost Accounting Discussion

A spirited discussion of cost accounting methods for the foundry followed a talk on the subject by E. T. Runge, Cleveland, consulting cost specialist of the association. Mr. Runge outlined a plan of simple cost accounting adapted for the small foundry which cannot afford the more elaborate systems employed by some of the larger companies. Mr. Runge laid emphasis on the importance of correctly figuring the cost of making cored castings as compared with plain castings. Much of the discussion centered on the advisability of having a reserve account to take care of credits for castings returned by customers. This discussion developed that some of the methods which foundrymen have discovered to be the most practical are complicated in their operation by the fact that the Government tax regulations do not permit methods which from a good accounting standpoint are regarded as sound practice. Several members told of controversies in which they are now engaged with the Government. It was stated that a movement is on foot in foundry circles to adopt a standard practice that allowance for returned castings shall not be given unless the castings are sent back within 60 or 90 days after receipt. An instance was cited of a foundry's customer putting in a claim after five years.

The work of the Division of Simplified Practice, Department of Commerce, was explained by R. M. Hudson, chief of that division, and lantern slides gave a graphic idea of the reforms which the Department of Commerce has assisted many groups of manufacturers in working out.

"IF we bar war and pestilence, and deal only with those causes internal to business itself, it seems rather clear that no serious depression can come unless it is preceded by a period of overexpansion, such as we had in 1907 and 1919-20, with prices skyrocketing, money tight and labor in excessive demand and correspondingly inefficient. * * * The signs of an approaching crisis of this kind are now so well known and have been so often described that I see little danger today that any reasonably careful business man will be caught unprepared by such a depression."—From an address by M. C. Rorty, economist, before the National Founders Association.

European Affairs a Banquet Subject

H. V. Kaltenborn, associate editor *Brooklyn Daily Eagle*, was the sole speaker at the annual banquet of the association. Having recently returned from a stay of several months in Europe, he gave his impressions of what he saw in various countries, particularly Russia. His trip abroad, he explained, was primarily for the purpose of studying prohibition and liquor control in the countries which have attempted such regulation. Prohibition had failed in Russia, he said, and was no longer enforced, while in Finland, a strictly prohibition country, law violations appeared to be as common as in the United States. The intricacies of the Swedish control system were humorously explained by the speaker.

Despite some progress recently made in Russia along industrial and economic lines, following the adoption of a new economic policy, Mr. Kaltenborn found the country backward in most of the things that count for progress in the United States. He found innumerable evidences of the unenforceability of many of the regulations imposed by the Soviet Government, human nature being what it is.

Although of an open mind before visiting Russia on the subject of recognition by the United States, he came away convinced of the inadvisability of such a move in view of the communistic propaganda which is being exerted by the Russian Government by means of moving pictures, text books in the public schools, newspapers and every other form of visual or other education. He does not fear the effect on American political life so much as on industrial conditions, and he cited the long-protracted garment workers' strike in New York as an example of communistic influences at work in America.

Germany, he said, had made the most amazing industrial progress in the past two years of any European country. He feared somewhat for the future of the countries ruled by dictatorships, saying that it was an efficient form of government while it lasted, but that the danger was ever present of revolutionary overthrow.

Welding in Gaseous Atmosphere

Atomic Hydrogen Process Described at Welding Society's Buffalo Meeting—Data Given on Welded Structural Members—Exposition a Feature

AN outline of the further developments in welding in a gaseous atmosphere was one of the outstanding features of the ten papers presented at the meeting of the American Welding Society, held at the Broadway Auditorium, Buffalo, Nov. 16 to 19.

Other papers were devoted to the application of welding in the structural and railroad fields, and the incorporation of welding science in the curriculum of engineering schools. Reports were made by committees on specifications, and on structural steel and programs of fundamental research were discussed at a meeting of the American Bureau of Welding, which is the research department of the welding society. All sessions of the meetings were well attended. The exposition of equipment, represented by more than 40 manufacturers, was a feature, as noted below.

Field Extended by Atomic Hydrogen Process

THE speakers at the session devoted to welding in a gaseous atmosphere, were R. A. Weinman, research engineer of the General Electric Co., Schenectady, and P. P. Alexander, research engineer, Thomson Research Laboratory of the General Electric Co., Lynn, Mass. The chairman of the session was M. F. Farmer, chief engineer, Electrical Testing Laboratories, New York, and president of the society.

Mr. Weinman's paper dealt with welding in the atomic hydrogen flame, some details of which were given in THE IRON AGE of April 8, page 989. Illustrations were by means of lantern slides, and the actual making of welds by the atomic hydrogen process was shown by moving pictures.

The process described by Mr. Weinman was that developed at Schenectady by Dr. Irving Langmuir. It is similar in some respects to that developed by Mr. Alexander at Lynn, and both methods, claimed to produce ductile welds, are regarded as marking a distinct step in the utilization of the heat of the electric arc in the joining of metal parts. In both processes, air is excluded from the metal by means of a bath of hydrogen or other gas. It is stated that the formation of oxides and nitrides is thus prevented, the fused metal being as strong and ductile as the original metal. In concluding his paper, Mr. Weinman stated that the results attained indicate clearly that welds can be made by the atomic hydrogen process which cannot be made by any other process. The apparatus requires further development to suit general commercial conditions, and it was said that it will be several months before commercial apparatus will be ready for the market.

A wide variety of welding work has been carried on in the laboratory with the atomic hydrogen flame, most of this work having been on alloys. Some of the metal constituents have been iron and steel with carbon content from 0.004 to 1.25; copper; aluminum; chromium; nickel; cobalt; tungsten; bronze; monel metal; stellite; lead; babbitt metal; alcumite; nichrome; Rezistall; cast iron; silver; platinum and silver solder.

Steel alloys include:

Chromium steel up to 35 per cent Cr content.
Nickel steel up to 85 per cent Ni content.
Cobalt steel up to 35 per cent Co content.
Molybdenum steel up to 20 per cent Mo content.
Tungsten steel up to 13 per cent W content.
Silicon steel up to 5 per cent Si content.
Aluminum steel up to 13 per cent Al content.
Vanadium steel up to 1.5 per cent V content.
Manganese steel up to 12.5 per cent Mn content.

Work has also been done on alloys containing mixtures of the following metals:

Copper, aluminum, nickel and iron.
Iron, aluminum, copper and carbon.
Iron, chromium, nickel, aluminum and carbon.
Iron, chromium, silicon, manganese and carbon.
Iron, aluminum, nickel, silicon and carbon.
Aluminum, zinc and manganese.
Aluminum, silicon and manganese.

In addition to the fusion of like metals, copper and aluminum have been fused onto the surfaces of low-carbon steels and also on chromium steels containing upward of 13 per cent chromium. Chromium is fused over the surface of low-carbon steels by melting dry chromium powder which is dusted on the metal. Chromizing and calorizing are also done by the atomic hydrogen torch. Calorizing, the introduction of aluminum, is done on boiler tubes without removing them from the boiler.

Vitreous enamel has been applied to soft stamping steel with straight butt welds, and to welds built up with additional metal with the atomic hydrogen flame. Silver has been applied to some metals.

Among the several illustrations shown by lantern slides was that of a pure aluminum deposit on a cold rolled steel slab ½ in. thick and 4 in. long. From a photomicrograph, it was to be noted that quite a little of the aluminum dissolved into the steel, the boundary of the two metals leaving no marked dividing line. Tests on this sample were said to show that the aluminum was in its original ductile state and could not be separated from the steel by tearing.

Another slide showed a 26 per cent chromium steel alloy, Ascoloy No. 1, from which a number of tubes were formed by welding sheet stock 1/32 to ¼ in. thick. Succeeding slides showed the same metal with copper welded to it. Copper welded to Invar, a steel containing 35 per cent nickel, the Invar being 20 mils thick, was also shown. The copper was said to flow in this metal very freely under the atomic hydrogen flame.

Welds Made on Alcumite

Welds made on Alcumite, a metal containing for a base copper with aluminum, iron and nickel, were also of interest. The parent metal had large grains and the weld between two adjacent pieces had the smaller grains, which was pointed out as being the reverse of what would occur in the majority of metals welded. The only mark of boundary between the weld and parent metals appeared to be the refinement of grain in the welded section.

A number of other illustrations were given including tubes welded with atomic hydrogen, and the results of the tensile and hardness tests of these specimens were discussed. Samples of a variety of specimens welded by this process were on display at the booth of the General Electric Co. during the exposition of welding equipment.

Mr. Alexander's paper, devoted for the most part to the influence of oxidation on the porosity of the weld, was also interestingly received. Investigation in this field has been on the deposited weld metal, rather than on the parent metal. The shielded arc process, developed by Mr. Alexander and described in THE IRON AGE of April 8, page 990, was outlined briefly.

In this process ductile welds are produced by surrounding the welding electrodes with an atmosphere of hydrogen or certain other gases. The gas is said to act as a flux and a shield against the oxygen and nitrogen in the air, preventing the formation of oxides and nitrides of iron in the molten metal. The method is based on the action of molecular hydrogen.

Developments in Welding of Structural Members

TWO papers relating to the application of welding in the structural field were presented at a session presided over by J. H. Edwards, assistant chief engineer of the American Bridge Co., New York. One of these was on "Comparative Tests on Arc Welded and Riveted Structural Steel Members," by A. M. Candy, welding

engineer, Westinghouse Electric & Mfg. Co., East Pittsburgh.

The series of tests described by Mr. Candy were those conducted at the Carnegie Institute of Technology, Pittsburgh, by the Westinghouse company, and referred to in THE IRON AGE of Aug. 5, page 344. The results of the tests have been outlined also in other publications and were presented to an interested audience at the recent annual convention of the American Institute of Steel Construction. These tests were said to have proved so conclusively that properly designed and fabricated arc welded connections have so many merits that a contract was awarded to the American Bridge Co. to construct a five-story, 70 x 220-ft., mill-type building 80-ft. high at the Sharon, Pa., works of the Westinghouse company. Several views of this building, five bays of which were erected at the time the photographs were taken, Nov. 12, were shown by lantern slides. Of the five bays erected, only one bay was completely welded.

The entire series of tests included 22 specimens typifying various structural joints and members, but details were given on only a few of the specimens.

Column connections, the design of which was stressed as offering an interesting study, in that continuity may be obtained with arc welding at less expense than where riveted designs are used, was first taken up. The welded connections were also said to be stronger than the riveted connections. Three specimens built to substantiate these ideas were shown by lantern slides and the design, method of test and results discussed. Two specimens, prepared to show the advantages gained by simply substituting arc welding for riveting in tension members, were also illustrated and described.

Data was also given on a series of three beam connections and of four specimen girders. One of the latter specimens was riveted and another was constructed of the same parts but assembled by arc welding. The third girder specimen was designed to take all the advantage of the possibilities of joining structural steel members by the use of arc welding to produce a girder of equal strength using less weight of steel. The fourth specimen was also designed to take maximum advantage of arc welding to use an amount of steel having approximately the same weight as the riveted girder.

All of these girders failed in a similar manner, principally by buckling of the top flange. It was stated that during the tests of these girders none of the welds showed signs of distress even at the points of maximum stress.

Welded Joints Develop Full Strength of Members

In concluding his paper, which was presented in abstract at the meeting, Mr. Candy stated that the tests demonstrate:

1.—Welded joints can be constructed in such manner as to develop fully the ultimate strength of the structural members connected.

2.—Beams and girders can be connected to columns so as to produce absolute fixation.

3.—Lines of beams or girders can be connected so as to provide complete continuity across the supports, whether the supports be girders or columns.

4.—That a steel I-beam of given section and length will sustain a far greater load if fixed at its ends by a suitably designed welded joint than if supported by standard riveted connections consisting of top and bottom angles. A 9-in. standard I-beam framed between rigid upright columns 8 ft. apart by means of specially designed welded connections sustained a load 25 per cent greater than a beam of the same size and length framed between columns by means of riveted top and bottom angles of ½-in. thickness.

5.—A plate girder assembled by welding and consisting of nothing but sheared plates, has a far greater bending strength than a riveted plate-and-angle girder of the same weight, due to the better distribution of the steel in the cross section. A 15-in. plate girder assembled by welding and simply supported on a 14-ft. span developed more than 50 per cent greater strength than a riveted plate-and-angle girder of the same depth and the same weight.

6.—A double-angle tension member such as is used in trusses was connected at the ends by welding, and when tested to tension failure broke through the angles at a load 30 per cent greater than the load at which a hanger consisting of the same size angles with riveted end connections failed.

The joints described by Mr. Candy are being used in the five-story building being fabricated and erected by the American Bridge Co. for the Sharon, Pa. works of the Westinghouse company. It was announced that on Dec. 15 and 16, the Westinghouse company would hold open house at Sharon, Pa., and an invitation was extended to witness the welding of the structure.

Some of the test specimens such as discussed in the paper were on view at the Westinghouse company's booth during the exposition.

To a question as to the cost of the welded structure as compared to a riveted structure, Mr. Candy said that it could not be determined exactly until the welding had been completed. It might be 10 per cent or 20 per cent less. In answer to another question, it was stated that lengths of material had been held down to much closer tolerances than for a riveted structure in order to be sure to give the welders as little trouble as possible in their work on the building. Mr. Candy said, however, that after this first job, he was not sure that it will be necessary to work to such closer tolerances.

Gives Data on 40-Ft. Welded Roof Truss

A PAPER that was regarded as containing much of interest for construction engineers, as well as for welding engineers, was that of H. H. Moss, Linde Air Products Co., New York, on "Tests on Oxy-Acetylene Welded Roof Trusses."

Numerous lantern slides were used to illustrate Mr. Moss' paper, which was devoted to the development and testing of a series of welded roof trusses by the Linde company at its Buffalo, N. Y., engineering laboratories. The test data presented were for the most part the same as published in THE IRON AGE of Aug. 26, page 544. A section of one of the trusses tested was on view during the time of the exposition of welding equipment.

Before describing the tests, Mr. Moss outlined some of the features of the joint design developed for these welded trusses. Initial studies produced what has been termed "insert plate joint." The next step was to apply this principle of joint designing in a completed truss. Designs were prepared for a series of trusses of 40-ft. span, one-quarter pitch, spaced 15-ft. center to center, to withstand a load of 40 lb. per sq. ft., of horizontal projection. All loads were disposed vertically at each panel point and summed up to 3000 lb. per panel, there being seven panel points of concentrated loading, not including those at the end supports.

For comparison it was necessary to study a riveted truss from the same specification. From the same billet producing the members of the riveted truss a duplicate set of members was rolled, with which a truss was fabricated differing from the riveted truss only in respect to the joints, which were welded by the insert plate method. In all, five trusses were made up for testing: One welded, symmetrical double angle type; one riveted; one welded, having duplicate members to the riveted truss; one welded pipe truss; and one welded truss made up for the most part of stock tees. A preliminary welded truss was developed to gain general experience. The method of testing was described at length and a summary of results, outlined in part in our issue of Aug. 26, was given.

Other Examples of Structural Welding

At the same session welded structures built in other countries were illustrated and described by W. Spraragen, secretary of the American Bureau of Welding. Among these were gas holders in Australia; an all-welded ship, the Fulgar; and an all-welded gas washing tank measuring 75 x 100 ft.

Some of the testing equipment of the Bureau of Standards, Washington, was shown by means of lantern slides by H. L. Whittemore, chief of the engineering mechanics section of the Bureau. Of interest was the ten-million pound testing machine used for the testing of brick walls. The testing of tanks and rail joints was shown, and the testing of a welded girder described.

A few examples of the application of welding to ship construction at the Newport News Shipbuilding & Dry Dock Co., Newport News, Va., were shown by J. W. Owens, director of welding of that company.

Of interest was a thermit welded new stern frame, and a completely welded condenser for a merchant ship.

Structural Steel Welding Committee Organized

Organization of the structural steel welding committee was completed at a meeting of that committee, under the chairmanship of J. H. Edwards, assistant chief engineer of the American Bridge Co., New York. Essential problems of the committee were discussed and five subcommittees appointed.

One subcommittee, headed by F. T. Llewellyn, United States Steel Corporation, New York, will collect all the data that has been published on the subject of structural steel welding. Another subcommittee, with L. H. Miller, chief engineer of the American Institute of Steel Construction, chairman, will specify types of tests, materials, etc., to secure information required by the designing engineer. A third committee, under the chairmanship of F. M. Farmer, chief engineer, Electrical Testing Laboratories, New York, will lay out the variables in welding and outline procedure control in the testing of welded structural members.

There is also a subcommittee on nomenclature, the chairman of which is J. W. Owens, director of welding, Newport News Shipbuilding & Dry Dock Co., Newport News, Va., and another on ways and means for securing support of investigational activities in the structural welding field. The chairman of the latter committee is E. H. Ewertz, general manager of the Bethlehem Shipbuilding Corporation, Ltd., Moore plant, Elizabeth, N. J.

Welding Wire Being Actively Investigated

THAT the matter of welding wire is assuming greater importance than in the past was plainly indicated in the discussion at a well-attended meeting of the welding wire specifications committee, which is headed by C. A. McCune, director of research American Chain Co., Bridgeport. It seemed generally felt that the committee has a serious line of work ahead of it.

Two classes of samples, designated as very good and very bad, were collected by the committee from users throughout the country, and these samples were tested by welding, flame test, etc., to ascertain why they were designated as good and bad.

The purpose of the investigation was to obtain a basis for improving the present welding wire specifications to include other items than chemical composition. The part of the present specification stating, in effect, that the wire shall possess good weldable qualities, is thought by the committee and others to be too ambiguous to give the best assistance to the welding industry. The committee plans to make some definite recommendations along this line at the next meeting of the society.

Welding of Locomotive Parts Described

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Records Kept of Major Operations

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where it is furnishing competition to the rivet in the construction of plate work such as storage tanks and boilers, and, according to recent reports, it has also been used in place of rivets in the erection of structural steel buildings. . . . With the practical side of welding making such farreaching strides, the question may well be asked as to what the various engineering schools are doing in the way of teaching the welding science. The mechanics of riveting has been taught for years and if welding is to replace riveting, our embryo engineers naturally must be taught the mechanics and construction of welded joints."

Other aspects of the question were discussed in papers by Prof. W. P. Turner, Purdue University; Prof. E. L. Lucas, Mississippi Agricultural and Mechanical College; Prof. S. T. Hart, Syracuse University, and Prof. F. V. Larkin, Lehigh University.

Further Welding Research Suggested

SUGGESTIONS for further research in welding processes and technique were made by committee chairmen and others at a meeting of the American Bureau of Welding, which was presided over by C. A. Adams, professor of electrical engineering Harvard Engineering School, Cambridge, Mass., and director of the welding bureau.

The bureau plans to undertake some fundamental investigations as to the "reason why of things," now unknown or only vaguely understood, and the ultimate aim of the bureau is the placing of welding on a sound scientific basis. A committee on fundamental investigations has been formed and the suggestions made at the meeting were addressed to the committee.

Study of the effect of the chemical composition of welding wire was one of several suggestions made in a report by H. M. Hobart, consulting engineer General Electric Co., and chairman of the bureau's electric arc welding research committee, which was read by W. Spraragen, secretary of the bureau. It was also suggested that physicists and metallurgists be represented on the fundamental investigation committee. In a brief report on "Procedure Control," S. W. Miller, consulting engineer, Union Carbide & Carbon Laboratories, Inc., Long Island City, N. Y., and chairman of the bureau's gas welding committee, urged the collection and distribution of available welding knowledge for use by welders.

The investigation of fatigue properties of welds was stressed as a fundamental by H. L. Whittemore, chief of the engineering mechanics section of the Bureau of Standards, Washington. Investigation of welds subjected to high temperatures was also brought up, and a progress report of tests made along this line by the San Francisco section of the welding society, were read by Mr. Spraragen. Non-destructive tests of welds by the magnetic, electrical conductivity and X-ray methods were discussed briefly by A. V. DeForrest, American Chain Co., Bridgeport.

Elimination of spatter in arc welding when using heavy current and large electrodes was suggested as an item of investigation by Professor Adams. This spatter, it was said, has been an obstacle to the development of the electric welding art. Investigation of the effect of heat-treatment of various deposited weld metals, and of the forging of welds, was also suggested by Professor Adams and others.

Exposition of Welding Equipment Comprehensive

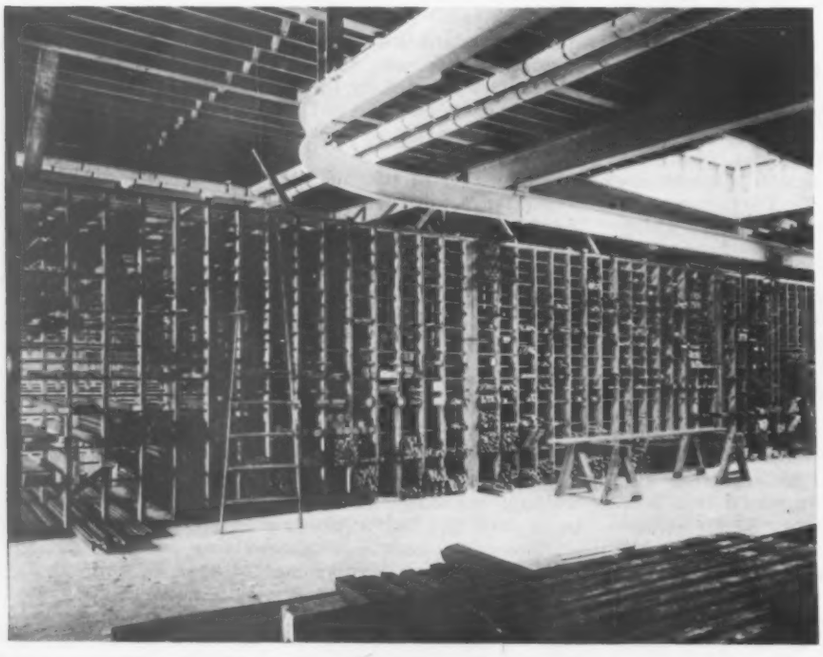
THE exposition of welding equipment and supplies, with more than 40 companies participating, was housed in the Broadway Auditorium, in space adjoining the room in which the technical sessions were held.

Electric and gas welding, and cutting equipment of all types were demonstrated in actual operation and thermit welding material was also exhibited. A broad line of accessories, including a number of brands of welding wire and rods, was also displayed. Much of the equipment was of recent design and some of it had not been previously announced to users. Two English companies, the Alloy Welding Processes, Ltd., and the Liquid Air Co., both of London, had exhibits. Ample space for booths and wide aisles favored the proper exposition of the equipment on view.

A feature of the exposition was the large number of welded products shown in the main aisle of the auditorium. These included a welded automobile body, fuselage of an airplane, samples of welded pipe lines, fan housings, barrels, hoppers, tanks, and a section of the Linde insert plate gas-welded truss. In addition a wide variety of welded specimens, photographs of installations, microphotographs of welds, test and other data was to be seen at the booths of many of the exhibitors.

Detroit Selected for Next Fall Meeting

The board of directors voted to hold the next fall meeting in Detroit. The annual meeting will take place in New York in April as heretofore. W. Spraragen, secretary of the American Bureau of Welding, was officially appointed technical secretary of the American Welding Society and Miss M. M. Kelly was appointed recording secretary and assistant treasurer.



TEN thousand square feet of floor space is provided in a new tool-steel warehouse recently completed by the Ziv Steel & Wire Co., 2945-51 West Harrison Street, Chicago. Office space, which is provided on the second floor at the front of the building, occupies an additional 3000 sq. ft. A truck and teaming entrance to the warehouse is located on an alley, and there is a clear center aisle so that material may be delivered by truck to a hoist on a monorail system, which circles the clear floor area. Rounds and squares from ¼-in. up to 4-in. are stored horizontally in racks as shown in the illustration, and larger material is piled on the floor beneath the monorail track. The stock carried consists of a full range of sizes of alloy and carbon tool steel, both annealed and unannealed, such as is required for a wide range of tool making. Power hack saws are provided to cut stock to specified lengths. Officers of the company are Gus. F. Ziv, president; A. Ziv, vice-president; Norman Hyslip, general sales manager, and A. F. Brunck, sales manager.

British Discuss Metallurgical Problems

Repeated Melting of Certain Alloys—Magnesium Alloys—Steel Wire for Rope—Foundry Conditions

(*Special Correspondence*)

LONDON, ENGLAND, Nov. 8.—The winter activities of British technical societies are now in full operation. Neither the Iron and Steel Institute nor the Institute of Metals hold any meetings at this time of the year, but the local sections of the Institute of Metals all have regular programs arranged and many interesting subjects are down for discussion between now and next spring.

The Metallurgist in Industry

The London section of the Institute of Metals opened its session with an address from the chairman, A. H. Mundey, who chose as his subject the "Position of the Metallurgist in Industry." Mr. Mundey enumerated the duties of the works metallurgist in a large engineering or manufacturing establishment, which demands not only a well-trained man of liberal education, but one possessing real personality and character, with broad sympathy and knowledge of human nature.

Mr. Mundey referred at some length to the question of the need for repeated melting of certain alloys if satisfactory castings are to be obtained. While pointing out that the costly and troublesome practice of repeated melting and ingotting which is standard practice, particularly in regard to high-tensile brasses, would not be adopted and maintained without adequate reason, he accepted the view expressed by scientific metallurgists that there is nothing in our knowledge of the nature and constitution of alloys to suggest that repeated melting is necessary or even desirable for the mere purpose of securing complete mixing of the ingredients of an alloy, but he remarked that in practice this view is not always borne out.

The speaker referred also to the problem of heating which naturally engages the attention of the metallurgist in industry, also to the effect of impurities in the metals. He pointed out that a small quantity of arsenic in lead alters the surface tension and promotes solidification in the spheroidal condition aimed at in making buckshot; small proportions of arsenic in tin induce a well-marked crystalline structure, while its effect on antimony alone is not striking. In the ternary alloys of lead, antimony and tin, however, strange and interesting but disturbing features are noticed. In certain alloys the crystalline structure is greatly accentuated by 1 to 2 per cent of arsenic, yet a similar amount modifies richer alloys and reduces the crystalline condition amazingly.

Large-Grained Steel Wire and Rope Wire

Dr. E. M. Horsburgh, in a paper read before the Institution of Engineers and Shipbuilders in Scotland, described his investigation of the question as to whether a large-grained mild steel wire exhibited properties distinct from those of steel rope wire. The opinion formed by the author is that steel which has been drawn to exhibit something approaching its greatest tensile strength, or the hardest plough steel, does not necessarily form the most suitable material for winding ropes. While in a winding rope a high tenacity is perhaps the chief essential, reliability under shock and durability are almost as important. The failure of winding ropes occurs through cumulative effects of abrasion, corrosion, shock, vibration, bending and age. The use of a hard material reduces abrasion.

As regards the live load and shock effects which are so important in causing failure, the question for which an answer is sought is: What is the most suitable condition for the highly fibrous drawn sorbitic steel? Possibly too large a grain is not wanted, as it might be dangerous under longitudinal shock. But if rope wire were drawn so as to exhibit a somewhat lesser fraction of its maximum tenacity than is at present customary, its material would still be able to yield under heavy shock, instead of being likely to part. It would seem that the most suitable wire for roping is a wire of fine structure, but not too highly drawn, so that the grains should still be able to adjust themselves infinitesimally under shock, thus insuring a longer working life.

Magnesium and Its Alloys

W. R. D. Jones dealt with this subject in a paper which he read before the Royal Aeronautical Society. In a commercial sense, he said, magnesium is a new metal for constructional purposes and its present state of development is the same as that of aluminum about 20 or 30 years ago. However, it is well entitled to serious consideration as a material of construction, and although its properties when in the "as cast" condition are not striking, its strength is so increased by forging that it will probably find extensive use in the unalloyed condition.

Magnesium metal must be melted in a steel or iron crucible, as the use of a clay crucible causes contamination with silicon, and the use of graphite crucibles is not possible on account of the carbide formation. The author has succeeded in producing sound ingots up to 4 in. in diameter, free from gas holes, slag inclusions, contamination of the melt with iron or silicon, and with complete freedom from burning. The method is as follows:

> A bottom-pouring forged steel crucible is "broken in" by forming on the internal surface a skin of magnesium or a magnesium-rich iron alloy by melting scrap metal in it for some hours. In this way no iron from the crucible, stopper or stirrer goes into the melt. With satisfactory melting practice, the loss should not exceed 0.50 to 0.75 per cent. Any trace of moisture in the metal, flux or crucible will result in unsound castings. The melting operation can be carried out in an upright circular gas furnace. When melting is complete, the metal is thoroughly stirred to incorporate the flux in the molten metal. The gas supply is turned off and the crucible allowed to cool slowly. When freezing is complete, the gas supply is turned on again and the metal remelted as rapidly as possible. Stirring is not again resorted to in order that the metal shall not be contaminated with flux and slag. The gas supply is lowered and the pot allowed to remain at rest for a few minutes. The pot is then taken from the furnace and teemed into the mold, placed an inch or so below. For chill castings the molds of forged steel or cast iron, pre-heated to a temperature between 350 and 400 deg. C., should have a smooth polished finish, showing no tool marks; a slight taper on molds larger than about 1¼ in. in diameter was found to be beneficial. The forging of alloys containing from 85 to 90 per cent magnesium is performed by rolling, extruding, drawing and hammering, and drop forging, with a general improvement in the mechanical properties. The best forging temperatures are from 410 to 450 deg. C. The billets should be heated and soaked at the temperature in a gas furnace free from the possibility of flames impinging on the bars and under pyrometric control.

The author considers the best practice is to use a muffle furnace heated to a constant temperature of 420 deg. C., plus or minus 5 deg., then to place the billets inside, and after the temperature has again reached 420 deg. C., to allow the bars to soak for one hour. Some of the chief uses for these alloys are: (1) portable instruments and artificial limbs; (2) constructional members in aircraft construction (thin sheets for casing having a tensile strength of 25 tons are readily obtainable); (3) piston metals for internal combustion engines.

R. F. Shaw, in his presidential address to the Lon-

engineer, Westinghouse Electric & Mfg. Co., East Pittsburgh.

The series of tests described by Mr. Candy were those conducted at the Carnegie Institute of Technology, Pittsburgh, by the Westinghouse company, and referred to in THE IRON AGE of Aug. 5, page 344. The results of the tests have been outlined also in other publications and were presented to an interested audience at the recent annual convention of the American Institute of Steel Construction. These tests were said to have proved so conclusively that properly designed and fabricated arc welded connections have so many merits that a contract was awarded to the American Bridge Co. to construct a five-story, 70 x 220-ft., mill-type building 80-ft. high at the Sharon, Pa., works of the Westinghouse company. Several views of this building, five bays of which were erected at the time the photographs were taken, Nov. 12, were shown by lantern slides. Of the five bays erected, only one bay was completely welded.

The entire series of tests included 22 specimens typifying various structural joints and members, but details were given on only a few of the specimens.

Column connections, the design of which was stressed as offering an interesting study, in that continuity may be obtained with arc welding at less expense than where riveted designs are used, was first taken up. The welded connections were also said to be stronger than the riveted connections. Three specimens built to substantiate these ideas were shown by lantern slides and the design, method of test and results discussed. Two specimens, prepared to show the advantages gained by simply substituting arc welding for riveting in tension members, were also illustrated and described.

Data was also given on a series of three beam connections and of four specimen girders. One of the latter specimens was riveted and another was constructed of the same parts but assembled by arc welding. The third girder specimen was designed to take all the advantage of the possibilities of joining structural steel members by the use of arc welding to produce a girder of equal strength using less weight of steel. The fourth specimen was also designed to take maximum advantage of arc welding to use an amount of steel having approximately the same weight as the riveted girder.

All of these girders failed in a similar manner, principally by buckling of the top flange. It was stated that during the tests of these girders none of the welds showed signs of distress even at the points of maximum stress.

Welded Joints Develop Full Strength of Members

In concluding his paper, which was presented in abstract at the meeting, Mr. Candy stated that the tests demonstrate:

1.—Welded joints can be constructed in such manner as to develop fully the ultimate strength of the structural members connected.

2.—Beams and girders can be connected to columns so as to produce absolute fixation.

3.—Lines of beams or girders can be connected so as to provide complete continuity across the supports, whether the supports be girders or columns.

4.—That a steel I-beam of given section and length will sustain a far greater load if fixed at its ends by a suitably designed welded joint than if supported by standard riveted connections consisting of top and bottom angles. A 9-in. standard I-beam framed between rigid upright columns 8 ft. apart by means of specially designed welded connections sustained a load 25 per cent greater than a beam of the same size and length framed between columns by means of riveted top and bottom angles of ½-in. thickness.

5.—A plate girder assembled by welding and consisting of nothing but sheared plates, has a far greater bending strength than a riveted plate-and-angle girder of the same weight, due to the better distribution of the steel in the cross section. A 15-in. plate girder assembled by welding and simply supported on a 14-ft. span developed more than 50 per cent greater strength than a riveted plate-and-angle girder of the same depth and the same weight.

6.—A double-angle tension member such as is used in trusses was connected at the ends by welding, and when tested to tension failure broke through the angles at a load 30 per cent greater than the load at which a hanger consisting of the same size angles with riveted end connections failed.

The joints described by Mr. Candy are being used in the five-story building being fabricated and erected by the American Bridge Co. for the Sharon, Pa. works of the Westinghouse company. It was announced that on Dec. 15 and 16, the Westinghouse company would hold open house at Sharon, Pa., and an invitation was extended to witness the welding of the structure.

Some of the test specimens such as discussed in the paper were on view at the Westinghouse company's booth during the exposition.

To a question as to the cost of the welded structure as compared to a riveted structure, Mr. Candy said that it could not be determined exactly until the welding had been completed. It might be 10 per cent or 20 per cent less. In answer to another question, it was stated that lengths of material had been held down to much closer tolerances than for a riveted structure in order to be sure to give the welders as little trouble as possible in their work on the building. Mr. Candy said, however, that after this first job, he was not sure that it will be necessary to work to such closer tolerances.

Gives Data on 40-Ft. Welded Roof Truss

A PAPER that was regarded as containing much of interest for construction engineers, as well as for welding engineers, was that of H. H. Moss, Linde Air Products Co., New York, on "Tests on Oxy-Acetylene Welded Roof Trusses."

Numerous lantern slides were used to illustrate Mr. Moss' paper, which was devoted to the development and testing of a series of welded roof trusses by the Linde company at its Buffalo, N. Y., engineering laboratories. The test data presented were for the most part the same as published in THE IRON AGE of Aug. 26, page 544. A section of one of the trusses tested was on view during the time of the exposition of welding equipment.

Before describing the tests, Mr. Moss outlined some of the features of the joint design developed for these welded trusses. Initial studies produced what has been termed "insert plate joint." The next step was to apply this principle of joint designing in a completed truss. Designs were prepared for a series of trusses of 40-ft. span, one-quarter pitch, spaced 15-ft. center to center, to withstand a load of 40 lb. per sq. ft., of horizontal projection. All loads were disposed vertically at each panel point and summed up to 3000 lb. per panel, there being seven panel points of concentrated loading, not including those at the end supports.

For comparison it was necessary to study a riveted truss from the same specification. From the same billet producing the members of the riveted truss a duplicate set of members was rolled, with which a truss was fabricated differing from the riveted truss only in respect to the joints, which were welded by the insert plate method. In all, five trusses were made up for testing: One welded, symmetrical double angle type; one riveted; one welded, having duplicate members to the riveted truss; one welded pipe truss; and one welded truss made up for the most part of stock tees. A preliminary welded truss was developed to gain general experience. The method of testing was described at length and a summary of results, outlined in part in our issue of Aug. 26, was given.

Other Examples of Structural Welding

At the same session welded structures built in other countries were illustrated and described by W. Spraragen, secretary of the American Bureau of Welding. Among these were gas holders in Australia; an all-welded ship, the Fulgar; and an all-welded gas washing tank measuring 75 x 100 ft.

Some of the testing equipment of the Bureau of Standards, Washington, was shown by means of lantern slides by H. L. Whittemore, chief of the engineering mechanics section of the Bureau. Of interest was the ten-million pound testing machine used for the testing of brick walls. The testing of tanks and rail joints was shown, and the testing of a welded girder described.

A few examples of the application of welding to ship construction at the Newport News Shipbuilding & Dry Dock Co., Newport News, Va., were shown by J. W. Owens, director of welding of that company.

Of interest was a thermit welded new stern frame, and a completely welded condenser for a merchant ship.

Structural Steel Welding Committee Organized

Organization of the structural steel welding committee was completed at a meeting of that committee, under the chairmanship of J. H. Edwards, assistant chief engineer of the American Bridge Co., New York. Essential problems of the committee were discussed and five subcommittees appointed.

One subcommittee, headed by F. T. Llewellyn, United States Steel Corporation, New York, will collect all the data that has been published on the subject of structural steel welding. Another subcommittee, with L. H. Miller, chief engineer of the American Institute of Steel Construction, chairman, will specify types of tests, materials, etc., to secure information required by the designing engineer. A third committee, under the chairmanship of F. M. Farmer, chief engineer, Electrical Testing Laboratories, New York, will lay out the variables in welding and outline procedure control in the testing of welded structural members.

There is also a subcommittee on nomenclature, the chairman of which is J. W. Owens, director of welding, Newport News Shipbuilding & Dry Dock Co., Newport News, Va., and another on ways and means for securing support of investigational activities in the structural welding field. The chairman of the latter committee is E. H. Ewertz, general manager of the Bethlehem Shipbuilding Corporation, Ltd., Moore plant, Elizabeth, N. J.

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Further Welding Research Suggested

SUGGESTIONS for further research in welding processes and technique were made by committee chairmen and others at a meeting of the American Bureau of Welding, which was presided over by C. A. Adams, professor of electrical engineering Harvard Engineering School, Cambridge, Mass., and director of the welding bureau.

The bureau plans to undertake some fundamental investigations as to the "reason why of things," now unknown or only vaguely understood, and the ultimate aim of the bureau is the placing of welding on a sound scientific basis. A committee on fundamental investigations has been formed and the suggestions made at the meeting were addressed to the committee.

Study of the effect of the chemical composition of welding wire was one of several suggestions made in a report by H. M. Hobart, consulting engineer General Electric Co., and chairman of the bureau's electric arc welding research committee, which was read by W. Spraragen, secretary of the bureau. It was also suggested that physicists and metallurgists be represented on the fundamental investigation committee. In a brief report on "Procedure Control," S. W. Miller, consulting engineer, Union Carbide & Carbon Laboratories, Inc., Long Island City, N. Y., and chairman of the bureau's gas welding committee, urged the collection and distribution of available welding knowledge for use by welders.

The investigation of fatigue properties of welds was stressed as a fundamental by H. L. Whittemore, chief of the engineering mechanics section of the Bureau of Standards, Washington. Investigation of welds subjected to high temperatures was also brought up, and a progress report of tests made along this line by the San Francisco section of the welding society, were read by Mr. Spraragen. Non-destructive tests of welds by the magnetic, electrical conductivity and X-ray methods were discussed briefly by A. V. DeForrest, American Chain Co., Bridgeport.

Elimination of spatter in arc welding when using heavy current and large electrodes was suggested as an item of investigation by Professor Adams. This spatter, it was said, has been an obstacle to the development of the electric welding art. Investigation of the effect of heat-treatment of various deposited weld metals, and of the forging of welds, was also suggested by Professor Adams and others.

Exposition of Welding Equipment Comprehensive

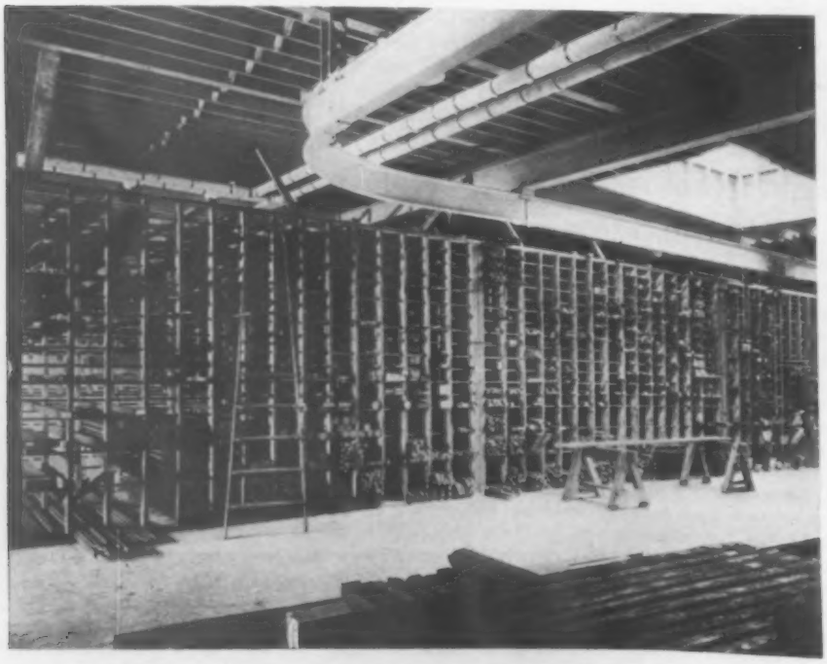
THE exposition of welding equipment and supplies, with more than 40 companies participating, was housed in the Broadway Auditorium, in space adjoining the room in which the technical sessions were held.

Electric and gas welding, and cutting equipment of all types were demonstrated in actual operation and thermit welding material was also exhibited. A broad line of accessories, including a number of brands of welding wire and rods, was also displayed. Much of the equipment was of recent design and some of it had not been previously announced to users. Two English companies, the Alloy Welding Processes, Ltd., and the Liquid Air Co., both of London, had exhibits. Ample space for booths and wide aisles favored the proper exposition of the equipment on view.

A feature of the exposition was the large number of welded products shown in the main aisle of the auditorium. These included a welded automobile body, fuselage of an airplane, samples of welded pipe lines, fan housings, barrels, hoppers, tanks, and a section of the Linde insert plate gas-welded truss. In addition a wide variety of welded specimens, photographs of installations, microphotographs of welds, test and other data was to be seen at the booths of many of the exhibitors.

Detroit Selected for Next Fall Meeting

The board of directors voted to hold the next fall meeting in Detroit. The annual meeting will take place in New York in April as heretofore. W. Spraragen, secretary of the American Bureau of Welding, was officially appointed technical secretary of the American Welding Society and Miss M. M. Kelly was appointed recording secretary and assistant treasurer.



TEN thousand square feet of floor space is provided in a new tool-steel warehouse recently completed by the Ziv Steel & Wire Co., 2945-51 West Harrison Street, Chicago. Office space, which is provided on the second floor at the front of the building, occupies an additional 3000 sq. ft. A truck and teaming entrance to the warehouse is located on an alley, and there is a clear center aisle so that material may be delivered by truck to a hoist on a monorail system, which circles the clear floor area. Rounds and squares from ¼-in. up to 4-in. are stored horizontally in racks as shown in the illustration, and larger material is piled on the floor beneath the monorail track. The stock carried consists of a full range of sizes of alloy and carbon tool steel, both annealed and unannealed, such as is required for a wide range of tool making. Power hack saws are provided to cut stock to specified lengths. Officers of the company are Gus. F. Ziv, president; A. Ziv, vice-president; Norman Hyslip, general sales manager, and A. F. Brunck, sales manager.

British Discuss Metallurgical Problems

Repeated Melting of Certain Alloys—Magnesium Alloys—Steel Wire for Rope—Foundry Conditions

(Special Correspondence)

LONDON, ENGLAND, Nov. 8.—The winter activities of British technical societies are now in full operation. Neither the Iron and Steel Institute nor the Institute of Metals hold any meetings at this time of the year, but the local sections of the Institute of Metals all have regular programs arranged and many interesting subjects are down for discussion between now and next spring.

The Metallurgist in Industry

The London section of the Institute of Metals opened its session with an address from the chairman, A. H. Mundey, who chose as his subject the "Position of the Metallurgist in Industry." Mr. Mundey enumerated the duties of the works metallurgist in a large engineering or manufacturing establishment, which demands not only a well-trained man of liberal education, but one possessing real personality and character, with broad sympathy and knowledge of human nature.

Mr. Mundey referred at some length to the question of the need for repeated melting of certain alloys if satisfactory castings are to be obtained. While pointing out that the costly and troublesome practice of repeated melting and ingotting which is standard practice, particularly in regard to high-tensile brasses, would not be adopted and maintained without adequate reason, he accepted the view expressed by scientific metallurgists that there is nothing in our knowledge of the nature and constitution of alloys to suggest that repeated melting is necessary or even desirable for the mere purpose of securing complete mixing of the ingredients of an alloy, but he remarked that in practice this view is not always borne out.

The speaker referred also to the problem of heating which naturally engages the attention of the metallurgist in industry, also to the effect of impurities in the metals. He pointed out that a small quantity of arsenic in lead alters the surface tension and promotes solidification in the spheroidal condition aimed at in making buckshot; small proportions of arsenic in tin induce a well-marked crystalline structure, while its effect on antimony alone is not striking. In the ternary alloys of lead, antimony and tin, however, strange and interesting but disturbing features are noticed. In certain alloys the crystalline structure is greatly accentuated by 1 to 2 per cent of arsenic, yet a similar amount modifies richer alloys and reduces the crystalline condition amazingly.

Large-Grained Steel Wire and Rope Wire

Dr. E. M. Horsburgh, in a paper read before the Institution of Engineers and Shipbuilders in Scotland, described his investigation of the question as to whether a large-grained mild steel wire exhibited properties distinct from those of steel rope wire. The opinion formed by the author is that steel which has been drawn to exhibit something approaching its greatest tensile strength, or the hardest plough steel, does not necessarily form the most suitable material for winding ropes. While in a winding rope a high tenacity is perhaps the chief essential, reliability under shock and durability are almost as important. The failure of winding ropes occurs through cumulative effects of abrasion, corrosion, shock, vibration, bending and age. The use of a hard material reduces abrasion.

As regards the live load and shock effects which are so important in causing failure, the question for which an answer is sought is: What is the most suitable condition for the highly fibrous drawn sorbitic steel? Possibly too large a grain is not wanted, as it might be dangerous under longitudinal shock. But if rope wire were drawn so as to exhibit a somewhat lesser fraction of its maximum tenacity than is at present customary, its material would still be able to yield under heavy shock, instead of being likely to part. It would seem that the most suitable wire for roping is a wire of fine structure, but not too highly drawn, so that the grains should still be able to adjust themselves infinitesimally under shock, thus insuring a longer working life.

Magnesium and Its Alloys

W. R. D. Jones dealt with this subject in a paper which he read before the Royal Aeronautical Society. In a commercial sense, he said, magnesium is a new metal for constructional purposes and its present state of development is the same as that of aluminum about 20 or 30 years ago. However, it is well entitled to serious consideration as a material of construction, and although its properties when in the "as cast" condition are not striking, its strength is so increased by forging that it will probably find extensive use in the unalloyed condition.

Magnesium metal must be melted in a steel or iron crucible, as the use of a clay crucible causes contamination with silicon, and the use of graphite crucibles is not possible on account of the carbide formation. The author has succeeded in producing sound ingots up to 4 in. in diameter, free from gas holes, slag inclusions, contamination of the melt with iron or silicon, and with complete freedom from burning. The method is as follows:

> A bottom-pouring forged steel crucible is "broken in" by forming on the internal surface a skin of magnesium or a magnesium-rich iron alloy by melting scrap metal in it for some hours. In this way no iron from the crucible, stopper or stirrer goes into the melt. With satisfactory melting practice, the loss should not exceed 0.50 to 0.75 per cent. Any trace of moisture in the metal, flux or crucible will result in unsound castings. The melting operation can be carried out in an upright circular gas furnace. When melting is complete, the metal is thoroughly stirred to incorporate the flux in the molten metal. The gas supply is turned off and the crucible allowed to cool slowly. When freezing is complete, the gas supply is turned on again and the metal remelted as rapidly as possible. Stirring is not again resorted to in order that the metal shall not be contaminated with flux and slag. The gas supply is lowered and the pot allowed to remain at rest for a few minutes. The pot is then taken from the furnace and teemed into the mold, placed an inch or so below. For chill castings the molds of forged steel or cast iron, pre-heated to a temperature between 350 and 400 deg. C., should have a smooth polished finish, showing no tool marks; a slight taper on molds larger than about 1¼ in. in diameter was found to be beneficial. The forging of alloys containing from 85 to 90 per cent magnesium is performed by rolling, extruding, drawing and hammering, and drop forging, with a general improvement in the mechanical properties. The best forging temperatures are from 410 to 450 deg. C. The billets should be heated and soaked at the temperature in a gas furnace free from the possibility of flames impinging on the bars and under pyrometric control.

The author considers the best practice is to use a muffle furnace heated to a constant temperature of 420 deg. C., plus or minus 5 deg., then to place the billets inside, and after the temperature has again reached 420 deg. C., to allow the bars to soak for one hour. Some of the chief uses for these alloys are: (1) portable instruments and artificial limbs; (2) constructional members in aircraft construction (thin sheets for casing having a tensile strength of 25 tons are readily obtainable); (3) piston metals for internal combustion engines.

R. F. Shaw, in his presidential address to the Lon-

don branch of the Institute of British Foundrymen said that foundrymen are ignorant of the scientific facts which are necessary for the improvement of their craft, and that this ignorance is responsible for much of the lack of progress and consequent anxiety and loss in the foundry industry.

Bethlehem and Other American Operations in Chile

Charles M. Pepper, director of the Chile-American Association, has issued from the association's offices at 32 Broadway, New York, an important monograph entitled "Mutual Trade and Resources of Chile and the United States." Mr. Pepper, with his background of 30 years of travel in South America and of contact with representatives of government and commerce in the countries to the south, has made no small contribution to the better appreciation that exists today in the United States of the resources of Chile and vice versa. In the membership of the Chile-American Association are the Bethlehem Chile Iron Mines Co., the Anaconda Copper Mining Co., the American Smelting & Refining Co., the Westinghouse and General Electric export organizations, Ingersoll-Rand Co., W. R. Grace & Co., Guggenheim Brothers, and banking and other interests.

The pamphlet in its 87 pages graphically surveys the mining, manufacturing, agricultural, transportation, commercial and financial resources of the two countries, the material being presented in English and Spanish in parallel columns. The growth of American investments in Chile from 25 millions to nearly 400 millions in 20 years is an epochal development to which the Panama Canal has contributed materially. This remarkable advance has put new responsibilities upon the Chile-American Association in the promotion of better intercourse and its work has been furthered by the increasing study of Spanish in the United States and of English in Chile. One of the association's activities has been the providing of scholarships for representatives from Chile who have come to this country to take courses in medicine and surgery and in mining engineering.

Simplification of Bore Sizes of Roller Bearings Determined Upon

WASHINGTON, Nov. 23.—Elimination of excessive varieties of bore sizes up to 6 in. of cylindrical roller bearings, those exclusive of that type which is now interchangeable with ball bearings, was determined upon as the initial step in simplification of cylindrical roller bearings at a meeting at the Department of Commerce under the auspices of the National Committee on Metals Utilization here on Wednesday, Nov. 17.

The conference was attended by a representative group of manufacturers. In considering the best method of making a survey of the existing varieties, the conference concurred in the belief that the request for data should come from the office of the National committee. It was also thought that the tentative simplified list be prepared by this committee for the criticism and modification of all the producers preliminary to submitting the list for consideration and adoption by a general conference of manufacturers, distributers and users.

Exports and Imports in October Decline Slightly

WASHINGTON, Nov. 23.—Showing a decline of 10,001 gross tons, United States exports of iron and steel in October totaled 172,070 tons as against 182,071 tons in September, according to the iron and steel division, Department of Commerce. Imports also declined in October, totaling 81,830 tons, as compared with the September total of 85,484 tons. For the 10 months ended with October exports aggregated 1,749,029 tons, as against 1,448,491 tons for the corresponding period of 1925. Imports for the same 10 months totaled 959,272 tons as against 765,187 tons for the corresponding 10 months of last year.

Water Transportation Essential to Equal Growth of All Parts of Country

ST. LOUIS, Nov. 23.—A letter from President Coolidge stating that he wanted the work of development of the waterways of the Mississippi for transportation purposes "to go on as rapidly as our financial resources will permit," and to that end he "had an additional item of $10,000,000 put into the present budget," was read here yesterday at the eighth annual meeting of the Mississippi Valley Association.

Advocating the further development of our inland waterways, Hon. Herbert Hoover, Secretary of Commerce, who was one of the principal speakers, asserted that new and cheaper means of transportation are essential to the equal advancement of all parts of the country. He said further:

> With the distortion of transportation rates resulting from the war and the Panama Canal, there has been a natural tendency of industry and commerce to migrate from the Mid-West to seaboard. This migration is exactly in the wrong direction. Sound national economy requires the establishment of industries nearer to our farmer consumers, for it gives both an immediate market to agricultural products and a large diversification of employment. Furthermore, if through cheaper transportation of raw materials we can give equal economic opportunity for the establishment of industry in the West, we shall secure a better distribution of population and tend away from the growing congestion of our enormous urban centers.

South Feels Foreign Demand for Coal

BIRMINGHAM, Nov. 23.—Coal producers in Alabama have been pushing output to help fill the shortage abroad occasioned by the British strike, as well as to supply the shipping trade. In addition to its usual deliveries to ocean-going steamship lines, the Birmingham district has been called upon to supply coal to coastwise vessels plying between Savannah, Ga., and Philadelphia. For export, heavy shipments of coal are being made through the port of Pensacola, Fla. The mines are operating six days a week, when a sufficient supply of railroad cars can be obtained.

Heavy Bookings in Fabricated Steel Plate

WASHINGTON, Nov. 23.—Bookings of fabricated steel plate in October totaled 33,137 net tons, according to reports received by the Department of Commerce from 36 firms. This represented 49 per cent of capacity, against the same percentage of capacity in September, with a total of 33,316 tons. Of the October bookings, 20,285 tons was for oil storage tanks; 2252 tons for refining materials and equipment; 2052 tons for tank cars; 744 tons for gas holders; 994 tons for blast furnaces and 6800 tons for stacks and miscellaneous purposes.

For the 10 months ended with October bookings have aggregated 356,612 tons, against 271,820 tons for the corresponding period of 1925 and 229,397 tons for the like period of 1924. The 10-month total this year exceeds the 12-month totals of both 1925 and 1924, which were respectively 332,804 tons and 313,109 tons. It is, however, far below the 1923 total of nearly 540,000 tons.

Atkins Company to Make Files

E. C. Atkins & Co., Indianapolis, maker of silver steel saws, has added a file department to its organization, and the company trademark "Silver Steel" has been adopted for Atkins files. All types of standard files for all classes of work will be marketed through the regular channels of distribution.

Steels Used by the Ford Company

Chromium and Carbon Steels Classified in Several Grades—No Specifications for Sheets—How Gears Are Hardened

STEEL used by the Ford Motor Co., Detroit, and the methods followed in selecting steels for various car parts as well as the practices in heat treating and quenching were discussed in an interesting talk by J. L. McCloud, metallurgist of the Ford company, before the Cleveland chapter of the American Society for Steel Treating at its monthly meeting Nov. 19. Mr. McCloud mentioned the development in the Ford plant of the plan of using special steels with the view of having material for different parts that would prove most satisfactory, taking into consideration various factors such as ease in fabrication, machinability and cost of material.

The speaker said that the Ford company uses the S. A. E. and other standard specifications from which it has built up its own specifications and that the tendency is to buy material on finer lines than covered in the standard specifications. The Ford company has 45 steel specifications and several grades of cast iron. Its large production enables it to sort material at its source. For some parts it buys steel with a carbon range of ten points, but for some work it splits this up into two groups with a carbon range of five points. Sometimes it even insists on a one-point limit in carbon range. Other elements besides carbon are often equally important, particularly manganese and chromium. Types of steel used in the plant are designated by letter.

Grades of Chromium Steel Used

The company is now using chromium steel where it formerly used chrome-vanadium. With improvements in heat treating, it is getting physical properties with chromium steel that it formerly did not get with chrome-vanadium, said the speaker. It has classified chromium steel in several grades according to carbon content, although there is some variation in the content of other elements. Starting with a carbon content of 0.17 to 0.22 per cent, these grades range up to one running 0.48 to 0.52 per cent carbon. Grade A, running 0.17 to 0.22 per cent carbon, has 0.60 to 0.75 per cent manganese, 0.65 to 0.90 per cent chromium and 0.12 to 0.15 per cent vanadium.

A large tonnage of the chromium steel is used in structural sections, connecting rods, crank shafts and other parts. This has a Brinell hardness of around 300 and sometimes up to 350. Some of the steel machined for connecting rods has a Brinell hardness of 340 to 364, but for steel of this hardness the temperature of both the furnace and quench must be controlled. Chromium steel, with 0.30 to 0.35 per cent carbon, is used in some connecting rods.

The present policy of the company, said Mr. McCloud, is to place its heat-treating equipment in its production lines instead of having it located in a separate heat-treating department. It is necessary to get alloy steel out of the quench while it is pretty hot, and this is accomplished with conveyors.

Method of Hardening Gears

The practice of the company in hardening gears differs from the usual practice. These are given one quench after carburizing, and the work is allowed to cool in the boxes, and then the core is hardened. By watching the core as carefully as the case, fatigue fractures in gear teeth are avoided. When the highest precision is wanted in gears, they are given a draw at 800 deg. Fahr. before the final machine operation.

Another group of the common alloy steels used is a chrome steel of 0.95 to 1.05 per cent carbon for bearings, particularly ball bearings. These are in three grades, differing only in chromium content. Some 5 per cent nickel steel is used for Lincoln steering sectors and some chrome-nickel steel is also used in the Lincoln car. A large tonnage of spring steel is used running from 0.45 to 0.52 per cent in carbon, 0.85 to 0.90 per cent in manganese and 1.00 to 1.20 per cent in chromium. Some silico-manganese steel is also used for springs.

Classes of Carbon Steel

The main group of straight carbon steels used is divided into three classes according to carbon content, ranging from 0.27 to 0.35 for the lowest carbon up to 0.40 to 0.45 per cent carbon. These all run from 0.70 to 0.90 per cent in manganese. These steels are in most cases heat treated. Some of this steel has been used for Ford rear axles in place of chrome steel, and all model T rear axles are made of these grades. It was found that, by using steel running 0.35 to 0.40 per cent in carbon, a steel with a Brinell hardness of 418 results. Fatigue tests of this steel are on a par with chromium steel and for some other parts the steel has proved far superior to chromium steel having a hardness of 300. This steel, running 0.27 to 0.35 per cent in carbon, is used for quantities of bolts in which hardness is wanted and is also used for some machine parts. The same class of steel of the grade running 0.35 to 0.40 per cent in carbon is used for some screw machine parts and is found comparable to Bessemer screw stock.

How Sheet Steel Is Selected

The company does not specify physical properties for sheet steel, having decided that the best test for this steel is the die that is to form the part. Thus the die becomes a testing machine. This has worked satisfactorily, although it is open to the objection that the plant passes the "buck" back to the steel mill to supply steel with the proper physical properties. For some stampings, particularly for chassis frames and chassis brackets, a steel running 0.23 to 0.30 per cent carbon and 0.30 to 0.45 per cent manganese is used.

High-chromium or stainless steel is used for pump shafts and for airplane and boat parts. The company formerly used a small amount of tungsten steel, but found that by using chrome steel, although its magnetic properties are a little less, the advantages outweighed those of the tungsten steel.

For staybolts for railroad locomotives, a low-carbon steel running 0.10 to 0.14 per cent carbon and 0.25 to 0.40 per cent chromium is used in place of wrought iron; it has proved more satisfactory. With its use the breaking of staybolts has been largely eliminated on D. T. & I. locomotives. The hardest steel used for machining in production work is for Lincoln rear axle shafts. It has a Brinell hardness up to 387.

The Ford company does very little carburizing. It improves the condition of the part by using high-carbon steel with the addition of alloys if required, and gets the necessary outside hardness without carburizing.

J. Fletcher Harper, president-elect of the national society, was present and spoke briefly.

Fire Clay Master Specifications

United States Government master specifications for fire clay have been issued as circulars Nos. 297 and 298 of the Bureau of Standards. The former, which is listed as Master Specification No. 335a, is for plastic fire clay refractories, while the other, which is No. 334a, is for fire clay. Both give detailed requirements, methods of inspection and tests, etc., with illustrations of a furnace design for conducting simulated service tests. Copies of either specification may be had at 5c. each from the Superintendent of Documents, Government Printing Office, Washington.

Depreciation Rates on Standard Basis

Scientific Analysis to Determine Rates Acceptable to Tax Commissioner—To Simplify Tax Returns

WASHINGTON, Nov. 22.—Scientific study of the iron and steel industry for the purpose of establishing standard rates of depreciation for tax purposes, instituted about two months ago, has created such widespread interest that the Department of Manufacture of the Chamber of Commerce of the United States has issued a statement urging all other lines of industry to facilitate the work of the Bureau of Internal Revenue by making similar study on their own initiative.

The study in the iron and steel industry, brought about entirely by the voluntary cooperation of the industry with the bureau, is a far reaching and progressive step looking to the setting up of typical rates of depreciation, which has been described as a "moot and difficult question for Government and business to reach an agreement upon." The study in the iron and steel line undoubtedly will bring about general principles for fixing rates of depreciation which can be applied in other lines, although necessarily, the equipment in the various branches of industry being of a different character, there will be varying rates.

But the movement being initiated in the iron and steel industry is especially significant because of the industry's complicated character and many ramifications. At the offices of the Bureau of Internal Revenue it was stated that it probably will require one year or more to complete the study in the iron and steel industry.

Most of Industry Is Helping

Promises of cooperation in preparing the schedules have been made by steel executives representing approximately 90 per cent of the productive capacity of the industry. The study is being conducted by John Alden Grimes, an engineer of the Bureau of Internal Revenue, whose time is being given largely to field work. Because the study is to be exceptionally comprehensive, it will start with the raw material, including ore, coal and limestone, and go through the numerous processes of manufacture. It is understood also that the survey will take into account supplementary equipment, such as machine tools used in repair work, and that it may even embrace depreciation on such units as hospitals, etc. It is said that transportation in carrying ore, coal, etc., will be omitted, but intraplant transportation will be included in the work.

When the bureau about two months ago issued a pamphlet entitled "Outline for the Study of Depreciation and Maintenance," demand for copies of the pamphlet was so great that the supply soon was entirely exhausted and the pamphlet no longer is available for general distribution. Consisting of 38 pages, the pamphlet contains, in addition to textual matter, numerous technical schedules which will be used in the iron and steel undertaking, although it does not necessarily follow that they will be adopted precisely as proposed.

This study of depreciation and maintenance charges made by the bureau has been undertaken with a view to the adoption of a definite procedure in the future audit of tax returns, but, according to the Commissioner of Internal Revenue, with no intention of reopening depreciation questions settled in audits already completed.

Agreement Simplifies Tax Returns

Evidently having in mind iron and steel, along with other industries, the commissioner, in the pamphlet, said that he and certain industries have agreed upon fixed rates of depreciation as reasonable for major items of plant and equipment used in those particular industries. The preparation and audit of the returns of such taxpayers has been greatly simplified and expedited by these agreements. The object of the present task, he points out, is to extend similar agreements to other industries as rapidly and completely as possible.

With this in mind it is proposed to make a statistical study of the related subjects of depreciation, maintenance and obsolescence, industry by industry; to tabulate the results of such study; to formulate a tentative policy and determine tentative rates for depreciation or for combined depreciation and maintenance charges; to refer the tentative rates and policies to the taxpayers of each industry for comment, suggestions for improvement, and either approval or disapproval; and finally to adopt and publish such rates as the commissioner and the majority of the taxpayers of an industry have mutually approved as reasonable.

Standard Rates Acceptable for Tax Returns

The pamphlet explains that an average rate for depreciation, or for combined depreciation and maintenance charges, will be determined for each type of depreciable asset, and this average rate the commissioner will accept as reasonable at any time and for any purpose.

In addition there will be determined customary maximum and minimum rates for depreciation, or for combined depreciation and maintenance charges. Within this range any taxpayer will be permitted to select for consistent application a rate of depreciation or a combined rate for depreciation and maintenance charges, upon a reasonable showing that deterioration of his particular physical assets proceeds more or less rapidly than is usual in his industry. The approval of depreciation, or of combined depreciation and maintenance rates, above the maximum or below the minimum customary rates for the industry will not be prohibited, if a taxpayer is able to produce convincing evidence that such rates are justified by peculiar conditions.

It is pointed out that, if this plan can be placed in operation, it will enable any taxpayer, using the average rate for depreciation or for combined depreciation and maintenance charges determined for his industry, to prepare a tax return involving depreciation, with a considerable saving of time and with the assurance that the amount of depreciation deducted will not then be disturbed by the commissioner. The advantages to the Bureau of Internal Revenue, in the quicker and cheaper audit of returns, are obvious. The pamphlet makes it clear that the schedules are not for the purpose of substituting a new method of accounting, but are proposed as guides to the manner in which available records may be furnished in a systematic manner.

Use of Composite Rates

Dealing with the principal problems of depreciation, it is pointed out that many of the larger corporate enterprises are consolidations or reorganizations of predecessor enterprises, in which the aggregate assets of other corporate enterprises have been acquired without allocation of the total cost of building assets, and frequently without appraisal of the physical assets required. It is explained that a composite rate of depreciation is selected which, in the opinion of officers of the corporation, is a proper rate, "but its selection is frequently intuitive rather than analytical."

In the course of time certain depreciable items will be disposed of, and must be eliminated from the property account. For example, it is pointed out, if an asset of five years' life is scrapped at the end of five years there should be no deduction for loss, whereas 75 per cent of the initial cost of the asset is its book value, in accordance with a 5 per cent composite rate of depreciation. On the other hand, if an asset of 50 years' life is destroyed at the end of 20 years, the 5 per cent composite rate of depreciation has resulted in its elimination as an asset in the books of account, whereas a loss of 60 per cent of its initial cost should be recognized.

Motor-Drive Features Redesigned Universal Tool and Cutter Grinder

The larger of the two cutter grinding machines built by the Norton Co., Worcester, Mass., has been redesigned, including the application of a complete, self-contained motor drive, each of the three operating units having its motor built into it.

The length of the table has been increased to permit of mounting work 36 in. long between centers and

Self-contained Motor Drive Has Been Applied, Each of the Three Operating Units of the Redesigned Tool and Cutter Grinder Having Its Own Motor

to provide a table traverse motion of 32 in. for both cylindrical and surface grinding operations. The cross-feed motion of the table is 8⅛ in. and an 8-in. vertical movement of the wheel column is possible. Work 12 in. in diameter is swung on the headstock and footstock centers. The maximum size face cutter or similar tool which may be ground, accommodated by projecting over the edge of the table, is 14 in. in diameter. Another feature is the introduction of a long lever for moving the table in short strokes past the wheel in cutter and other tool sharpening operations. For longer hand traverse motion a pilot wheel operates through a fast and slow speed to suit grinding requirements.

The double-end wheel spindle is driven by a ½-hp. constant-speed motor mounted on a platform in the base of the machine, this platform being attached to the wheel column, thus holding the motor in the same relation to the wheel spindle at all times. A switch control located at the door at the front of the base is used for starting and stopping the motor.

The headstock has a 1/20-hp. adjustable-speed direct-current motor, which provides work speeds ranging from approximately 200 to 350 r.p.m. The speeds are controlled by a field rheostat on the base of the machine, while a push button switch is used to start and stop the motor.

The automatic traverse of the table is operated by a ⅛-hp. adjustable-speed direct-current motor built into the traverse mechanism. Variations in motor speed, controlled by a rheostat on the front of the base, together with change gears, provide power traverse speeds ranging from 70 to 392 in. per min.

When direct current is not available for the headstock and table traverse motors, a generator is installed in the machine base, replacing the smaller motor regularly used for the wheel drive, and coupled direct to the motor shaft.

The adaptability of the machine to a wide range of work is provided through adjustments in the setting of the table, height of the wheel head and universal fixtures supplied as equipment, as required for the work for which the machine is intended. The table can be swiveled through 150 deg., which permits setting in any desired position in relation to the grinding wheels. For taper grinding, the swivel table may be swung the desired amount by means of a delicate adjustment, or when holding work on a face plate or in a chuck the headstock is swiveled to obtain the taper.

Air-Operated Spot Welding Machine

Uniformity in heat, pressure and time, resulting in uniformly good welds, is claimed for a new air-operated spot welder, known as the Hi-Speed, which has been placed on the market by the Gibb Welding Machines Co., Bay City, Mich. Reduction of fatigue in production operations is an advantage stressed, and on sheet metal of No. 18 gage and heavier, increased speed of operation is also claimed.

The arrangement of the air-operating mechanism may be noted from the accompanying illustration. The upper or lever arm of the machine carries the electrode and the secondary connection at the front. At the rear end of this arm is attached the piston rod with a large compression spring, the air cylinder being mounted beneath the spring as shown. The air cylinder is arranged so that it is maintained in proper alinement with the upper arm at all times. It is 3½ in. in diameter by 3⅛ in. stroke. The leverage on the upper arm on standard arm lengths is approximately two to one, giving a stroke of about 1¾ in. at the electrodes. A regulating valve is provided to permit varying the pressure from 10 lb. to 100 lb. per sq. in. depending upon the work and the air supply available.

The foot valve is arranged so that only a very short stroke is needed for operation, and this, together with the nearness of the treadle to the floor, facilitates operation of the machine. An automatic remote control switch mounted on the treadle operates a magnetic switch located within the base of the machine and a six-point heat regulator is provided to furnish various heats for material of different gages. An attachment for foot operation, without air, can be furnished if desired, thus providing against loss of production through a temporary failure of the air supply.

The machine is available with depths of throat up to 24 in. and greater. The capacity is for welding light sheets up to and including two thicknesses of No. 7 gage or equivalent. The weight of the machine is 1800 lb.

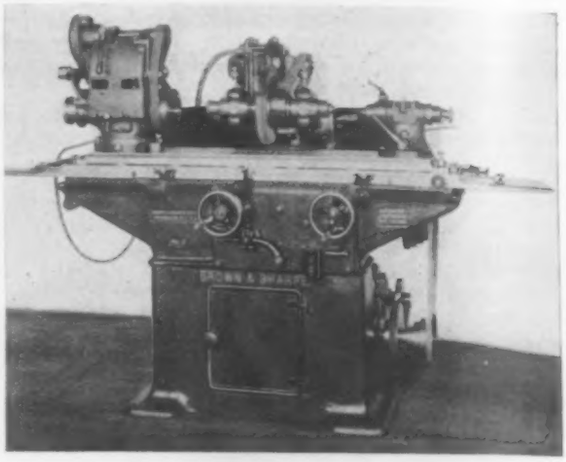
The Air Mechanism Is Actuated by the Foot Pedal

Applies Motor Drive to Universal Grinding Machines

Self-contained motor-driven models of its Nos. 2, 3 and 4 universal grinding machines have been placed on the market by the Brown & Sharpe Mfg. Co., Providence.

Power for the headstock drive, for the wheel spindle drive and for the table feed drive on each machine is supplied by three individual motors. The three motors are controlled by a push button switch located at the front of the machine and within immediate reach of the operator. "Burning out" of the motors through overloading is prevented by means of protective plugs located in the magnetic switch control box, which is mounted on the base casting at the rear of the machine. Any motor not needed may be cut out by removing one of the protective plugs from this switch.

The method of taking the drives from the motors may be noted from the accompanying illustration. Although amply protected the motors are accessible and are located with regard for the efficient delivery of power to the operating parts. The work-driving motor is mounted on the headstock, which is compactly designed and has provision for driving the work on either live or dead centers by means of an arrangement of belts, pulleys, idlers and belt tighteners. The wheel-spindle driving motor is mounted on the wheel stand, which is bolted to the wheel-stand platen. The drive is direct from the motor pulley to the spindle pulley except when the internal grinding attachment is used. In the latter case the spindle is replaced by a countershaft through which the drive is taken to the attachment mounted on the platen, which has been placed in the reverse position. The motor which furnishes power for the automatic table travel and cross feed is located at the rear of the machine. This motor also drives the pump which provides water for wet grinding.



Power for the Headstock, Wheel Spindle and Table Feed Drives Is Supplied by Three Individual Motors

New Line of Rotary Gang Slitting Shears

A new line of rotary gang slitting shears, equipped with feed rolls as well as with delivery rolls, and also available with roller leveler mechanism, has been brought out by the Streine Tool & Mfg. Co., New Bremen, Ohio.

The top brace and bed plate carry thrust bearings which are easily adjustable and which are said to prevent all possible deflection of the cutter shaft. The drive is controlled by an Edgemont type disk clutch which permits the instant starting and stopping of the machine.

A long extension table can be supplied for attachment to the front of the regular feed table when long sheets are to be cut. The extension table is equipped with a squaring gage interchangeable from the right to the left-hand side of the table. The delivery rolls are attached to the housings by two cap screws and can be swung downward to enable the operator to get at the cutters for adjustment, grinding, etc. The end housing can be moved back, permitting ease in the removal and putting on of the cutters.

Machine tool standards have been followed in designing the machine, which is of heavy and rigid construction. Bronze bushings are used throughout and the cutter shafts are hardened and ground and equipped with ball thrust bearings. The upper cutter shaft is adjustable up and down by means of graduated micrometer screws.

The shears are built in seven widths, from 20 in. to 74 in. They are made in three types, one having a capacity to take 10 cuts of No. 30 gage steel to two cuts of No. 20 gage; another having capacity of from 10 cuts of No. 20 gage to two cuts of No. 10 gage, and the third having a capacity of from 10 cuts of No. 10 gage to two cuts of ¼-in. material. The machine will be furnished equipped with three types of cutters, steel tread rubber cushion cutters, solid tool steel double edged cutters, and with disk cutters for spacing collars.

Rotary Gang Slitting Shear Equipped with Feed and Delivery Rolls. The rear view, at the right, shows the delivery rolls swung out to permit grinding of the cutters

Downward Trend in European Prices

Early Strike Settlement a Factor—French Await Readjustment of Prices to New Franc Value—German Output Exceeds Quota

(*By Cable*)

LONDON, ENGLAND, Nov. 22.

THE coal situation is still uncertain, although miners are returning in increasing numbers. Pig iron producers are making preparations for blowing in blast furnaces but it is doubtful if any iron will be available before the end of the year.

Cleveland iron prices are nominal and unchanged, but No. 3 G.M.B. is reported to have been offered at £4 to £4 5s. ($19.40 to $20.60) for first quarter. Hematite supplies are exhausted, but sellers are asking £4 7s. 6d. to £4 10s. ($21.22 to $21.82) per ton for January-March delivery. Foreign ore continues idle with Bilbao Rubio prices nominal.

Ferromanganese stocks are low and the price has been advanced 20s. ($4.85) per ton in the domestic market.

Finished steel prices are firm and most mills are sold out for three months in advance, but few makers expect to resume operations this year. Swan, Hunter & Wigham Richardson, Wallsend-on-Tyne, have secured the contract for the large floating dock at Singapore on a bid of £1,200,000.

Continental markets are generally easier in anticipation of an early end of the British coal strike and the fact that most users require early shipment, which works, as a rule, are unable to offer. Merchants have sold merchant bars at £5 10s. per ton (1.19c. per lb.), f.o.b., for February shipment. The Acieries Reunies de Burbach-Eich-Dudelange has blown in the seventh of its eight furnaces at Saarbrück.

Tin plate is quiet but prices are being maintained. First quarter sales have been made at 23s. 9d. ($5.70) and December shipment is quoted at 24s. to 24s. 6d. ($5.82 to $5.94). Prompt shipment tin plate is quoted at 25s. 3d. to 25s. 6d. ($6.13 to $6.19), all per base box, f.o.b. works port.

General demand is poor, owing to the near settlement of the British coal strike, consumers preferring to await definite news on shipments before entering new contracts.

Galvanized sheets are easier on smaller demand. Makers of the heavier gages are well sold to the end of the year, but orders are wanted for January and later delivery. Black sheets are quiet.

FRENCH AWAIT LOWER PRICES

Consider Quotations Too High Since Rise of Franc—Pig Iron Market Strong

PARIS, FRANCE, Nov. 5.—Following the rapid rise in the value of the franc, orders have practically ceased, with buyers awaiting a corresponding decrease in quotations. Sellers admit the necessity of a downward revision of present prices but hesitate to make an immediate change until the stability of the franc at its present level is more certain. Domestic prices as a whole are tending downward in the absence of any general action by the mills, but sellers point out that much reduction in price will prove difficult with the increased costs they are now facing. Export prices are largely influenced by competition with other European steel producing countries, particularly Germany, the existence of the cartel apparently exercising no effect.

Pig Iron.—September production was smaller than July, which was a month of light production. With current demand for iron smaller than for several months, stocks are being reduced and it seems likely that moderate demand will again appear before long. Export buying is still satisfactory with prices firm and showing an upward tendency. The French-Belgian-Luxemburg syndicate of producers has set the price of No. 3 foundry at £4 per gross ton ($19.40), f.o.b. Antwerp, for British delivery, £4 per metric ton, f.o.b. Dutch frontier, 95 Swiss fr. ($18.31) per metric ton, f.o.b. Basle, Switzerland, and £3 15s. ($18.18) per ton, f.o.b. Italian frontier.

Semi-Finished Material.—Demand is active, particularly for export. Practically no spot material is

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.85 per £ as follows:

Durham coke, f.o.b..	£3	7½s.				$16.37		
Bilbao Rubio ore†..	1	0				4.85		
Cleveland No. 1 fdy. (nom.)	6	5				30.31		
Cleveland No. 3 fdy.	6	0				29.10		
Cleveland No. 4 fdy.	5	19				28.85		
Cleveland No. 4 forge	5	18½				28.73		
Cleveland basic (nom.)	3	15	to £3	15½s.		18.18	to	$18.30
East Coast mixed...	4	12½				22.43		
East Coast hematite	4	8				21.34		
Rails, 60 lb. and up	7	15	to	8	0	37.58	to	38.80
Billets	7	10	to	8	15	36.37	to	42.43
Ferromanganese ...	16	0				77.60		
*Ferromanganese ..	15	0				72.75		
Sheet and tin plate bars, Welsh	6	15	to	7	10	32.72	to	36.37
Tin plates, base box.	1	3½	to	1	5¼	5.70	to	6.12
Black sheets, Japanese specifications	15	5	to	15	15	74.11	to	76.53
						C. per Lb.		
Ship plates	7	15	to	8	5	1.67	to	1.78
Boiler plates	10	11				2.25		
Tees	8	5	to	8	15	1.79	to	1.89
Channels	7	10	to	8	0	1.61	to	1.72
Beams	7	5	to	7	15	1.57	to	1.68
Round bars, ⅝ to 3 in.	8	5	to	8	15	1.79	to	1.89
Steel hoops	10	10	and	11	0*	2.28	and	2.39*
Black sheets, 24 gage	12	10	to	12	15	2.70	to	2.76
Galv. sheets, 24 gage	17	5	to	17	10	3.73	to	3.78
Cold rolled steel strip, 20 gage, nom.	18	0				3.91		

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports

(Per Metric Ton)

Foundry pig iron: (a)								
Belgium	£4	0s.	to	£4	5s.	$19.40	to	$20.61
France	4	0	to	4	5	19.40	to	20.61
Luxemburg	4	0	to	4	5	19.40	to	20.61
Basic pig iron:								
Belgium	3	12	to	3	14	17.45	to	17.94
France	3	12	to	3	14	17.45	to	17.94
Luxemburg	3	12	to	3	14	17.45	to	17.94
Coke	0	18				4.37		
Billets:								
Belgium	5	5	to	5	9	25.46	to	26.41
France	5	5	to	5	9	25.46	to	26.41
						C. per Lb.		
Merchant bars:								
Belgium	5	12½	to	5	15	1.22	to	1.25
Luxemburg	5	12½	to	5	15	1.22	to	1.25
France	5	12½	to	5	15	1.22	to	1.25
Joists (beams):								
Belgium	5	12½	to	5	15	1.22	to	1.25
Luxemburg	5	12½	to	5	15	1.22	to	1.25
France	5	12½	to	5	15	1.22	to	1.25
Angles:								
Belgium	6	0				1.32		
¼-in. plates:								
Belgium (nominal)	6	17½	to	7	0	1.51	to	1.54
Germany (nominal)	6	17½	to	7	0	1.51	to	1.54
⅜-in. ship plates:								
Belgium	6	7½				1.40		
Luxemburg	6	7½				1.40		
Sheets, heavy:								
Belgium	6	2	to	6	4	1.33	to	1.34
Germany	6	2	to	6	4	1.33	to	1.34

(a) Nominal.

available. Prices are firm, although British buyers are offering to buy on a lower level than recently. For export blooms are quoted at £4 12s. 6d. to £4 17s. 6d. ($22.41 to $23.64), billets at £5 4s. to £5 5s. ($25.22 to $25.46), and slabs at £5 9s. to £5 11s. ($26.42 to $26.91) per ton, f.o.b. Antwerp.

Finished Material.—Only a few plants are booked ahead as far as 60 days. Buying is light as a result of the higher value of the franc, buyers being unwilling to pay the present high level as a result of the increased value of the franc, and sellers hesitating to contract at prices based on the present exchange, until the stability of the franc is assured. Beams have been sold for export at £5 11s. to £5 12s. 6d. per ton (1.20c. to 1.22c. per lb.). Rails of 40-lb. and lighter, not controlled by the European Rail Makers Association, are quoted at 845 to 860 fr. ($30.42 to $30.96) per ton, f.o.b. makers' works in the east, and fish plates are bringing 100 fr. ($36.00) per ton for 40 lb. and lighter, which are not controlled by the association. Wire rods for export are fairly active and the price is maintained at £5 15s. per ton ($27.88), f.o.b. Antwerp.

BELGIAN PRICES DECLINE

Semi-Finished Steel Off With Decrease in British Demand—Pig Iron Higher

BRUSSELS, BELGIUM, Nov. 5.—Although the market is stationary, there is undoubtedly a tendency toward weakness and many mills are seeking business, particularly in bars and beams. Effective Nov. 1, the steel industry has increased wages 5 per cent. The pig iron market is firm but semi-finished material is developing a decided weakness which is reflected in the finished material market. Keen German competition is reported on most products.

Pig Iron.—The market continues strong and prices have been advanced to new high levels. Practically no spot tonnage is available. Current prices are above the price fixed by the French-Belgian-Luxemburg syndicate of pig iron producers. The fixed price for November was 645 fr. and 650 fr. for December in the domestic market, but current business is being transacted at 680 to 685 fr. per metric ton. A similar situation exists for export where the fixed price on No. 3 foundry is £4 per ton ($19.40), f.o.b. Antwerp, and sales are reported at £4 2s. to £4 3s. per ton ($19.88 to $20.12).

Semi-Finished Material.—Demand is decreasing and there is a distinct tendency toward lower prices. British buyers are considerably less active and no longer willing to pay high prices. Blooms are still scarce and quotations vary, depending upon the size of the tonnage under inquiry. Prices are from £5 4s. to £5 5s. ($25.22 to $25.46) per ton on billets, £4 12s. 6d. to £4 17s. 6d. ($22.41 to $23.64) per ton on blooms and £5 9s. to £5 11s. ($26.42 to $26.91) per ton on slabs, all f.o.b. Antwerp.

Finished Material.—Business is practically stationary, with prices developing weakness. German competition, especially on beams, is reported keen. On export business German sellers have booked business as low as £5 10s. (1.19c. per lb.), while Belgian mills are quoting £5 11s. (1.20c. per lb.) and as high as £5 12s. 6d. per ton (1.22c. per lb.). Bar prices are variable, large lots bringing out as low as £5 12s. 6d. per ton (1.22c. per lb.) and smaller lots £5 13s. to £5 15s. per ton (1.22c. to 1.25c. per lb.), f.o.b. Antwerp. Angles are quiet but slightly firmer than bars or beams, with quotations at £5 13s. to £5 14s. per ton (1.22c. to 1.23c. per lb.), f.o.b. Antwerp. Sheets continue quite firm, despite the weakness in other lines. As a result of French and German competition, the lighter gages are not moving in large volume, but demand for the heavy gages is good.

GERMAN BUSINESS GOOD

Heavy Operation in Most Lines—World Market Prices Higher—Car Builders to Merge

BERLIN, GERMANY, Nov. 6.—Improvement in steel business continues, the recent increase in export trade having spread to the domestic markets, so that the prosperity of the immediate future is no longer entirely dependent upon the British strike. The November production rate of German mills has been increased by the German Steel Syndicate to 80 per cent of capacity, actually an adjustment of the official figure to the actual output, which has been at fully 80 per cent for several weeks. The total output of Germany is in excess of the quota of the International Steel Cartel, but as the increased demand for steel is being felt by all members, the cartel has established the fourth quarter production at 29,278,000 metric tons annually. According to the original plan of the cartel, at the present rate, Germany's quota of the total would be 43.18 per cent, or 12,645,000 tons, and France's 31.19 per cent or 9,133,000 tons, but it is reported that these percentages are being reconsidered. The current output of Germany is at a considerably higher rate than 12,645,000 tons a year. On this excess tonnage there will be a fine of $4 a ton under the rules of the cartel, but as most of the other participants are expected to exceed their quotas, the ultimate burden on the German mills will probably be small. In some quarters it is believed now that the 29,278,000 tons maximum originally established is too small in view of the revival of business.

Pig iron demand is increasing, especially for export. In the domestic market, improvement is checked by dullness in the foundry trade, but export prices are advancing. The scrap market reached a higher level last month, but has become quieter in the past week or two. The domestic iron ore industry is better than for some time. This improvement in ore is partly the result of financial aid by the government and concessions on railroad freight rates. Both semi-finished and finished material are active.

German steel production in September was at the rate of about 13,750,000 tons a year, or about 300,000 tons a year in excess of the international quota. The estimate of the present output of steel is about 17,000,000 tons a year.

One of the principal features of current business is the increased demand from the domestic market, without the usual decrease in export business. As domestic prices are still above export quotations, this is financially of great advantage to the mills. Domestic purchasing of semi-finished steel is heavy and recent improvement reported by finishing mills promises further increases. Export buying of semi-finished material is less active. Prices are likely to be maintained in this market, as Luxemburg works are booked for several months ahead, Belgian prices are being maintained by the stabilization of the franc and French production costs have increased greatly.

Manufacturers of railroad permanent way material are well booked with business sufficient to carry them into the summer. Operations, however, are not at full capacity and the Stahlwerksverband is making strong efforts to increase export trade. Demand for steel rails for foreign railroads has declined and municipalities are slow purchasers of grooved and high T-rails.

Domestic buying of building materials is satisfactory but export of structural steel is only moderately active. Only about 30 to 35 per cent of present business in structural material is for export. Heavy sales of bars were reported in October, with as high as £5 18s. 6d. per ton (1.28c. per lb.) f.o.b. Rotterdam, Antwerp or Amsterdam, obtained on export business, about 25s. per ton higher than the lowest price of the year. Export demand for bars is light, as buyers bought prior to the formation of the International Steel Cartel.

Export of tin plate has increased materially and all makers are engaged to full capacity. Delivery terms to domestic consumers of tin plate have been extended, and users complain that manufacturers are neglecting domestic business to take advantage of the large export demand.

The continued rise in foreign prices has resulted in further reduction of the German Steel Syndicate's price rebates to exporting manufacturers. It is reported here that the joint American-German inquiry commission on German steel bounties will not recommend any actions against German imports of steel by the United States. The "world market" prices in marks per metric ton established for November and the bounties or difference between these prices and the domestic quotations are as follows:

	World Market	Price Rebate
Ingots	95	11
Blooms	100	11
Billets	105	12
Slabs	110	9
Structural steel	116	15
Bars	118½	17
Wire rods	120	14
Tubes	310	55

A "study corporation" has been formed as a preliminary to the proposed merger of the railroad car builders. Members of the "study corporation" are Van der Zypen of Cologne-Deutz, Gothaer Wagonfabrik of Gotha, Gustav Talbot Co. of Aachen, Linke-Hofmann Wagonfabrik of Bautzen, Gebrüder Gastell of Mayence and Wagonfabrik Steinfurth of Koenigsberg. The merger will include only part of the car building industry. There are three groups of loosely connected companies, and in addition the large Orenstein & Koppel Co., which enjoys a special position in the industry because of its foreign connections. In general the car building industry of Germany has developed beyond the country's needs and the limited export possibilities.

American Exports to Soviet Russia $55,000,000 in Year

WASHINGTON, Nov. 23.—American machinery and vehicles valued at $17,400,000 were included in American shipments to the Soviet Union during the Soviet fiscal year ended Sept. 30, according to figures compiled by the Russian Information Bureau from reports gathered from the American-Russian trading companies. The total of American exports to the Soviet Union for the fiscal year was $55,000,000, so that machinery accounted for nearly one-third of the business. The total American imports from the Soviet Union for the period were about $35,000,000, about five times the pre-war figures. Of this, American imports of manganese are estimated at about $15,000,000, or more than triple the imports of the previous year.

American exports included agricultural machinery valued at $8,100,000, industrial equipment and machinery worth nearly $7,000,000 and material for transport, including automobiles, worth $2,300,000.

The agricultural machinery included tractors worth $6,099,238. The industrial machinery included mining machinery, $3,347,382; oil machinery, $1,475,371; machinery for metal industry, $726,383; for silicate industry, $419,867; textile machinery, $197,546. The chief item of the materials for transport was "airplanes, internal combustion engines and parts, $1,513,079."

American exports included non-ferrous metals valued at $2,034,417.

Coal shipments have been the greatest this fall that they have ever been for this season of the year except in 1918, when the movement was stimulated by the world war, according to the Car Service Division of the American Railway Association. From Aug. 30 to Oct. 23 this year, 1,960,381 cars have been loaded with both bituminous and anthracite coal. This exceeded by 363,687 cars the corresponding period last year and was only 39,250 cars below the corresponding period in 1918.

EXPORT TIN PLATE HIGHER

American Mills Advance Price—Good Japanese Sheet Buying for Nearby Delivery

NEW YORK, Nov. 23.—Although purchasing by large Japanese companies continues in fair volume, early settlement of the British strike has evidently influenced merchant buyers of light gage sheets and tin plate to delay purchasing until British mills are again in the market. The past year, however, has been an active one with most Japanese export houses, and in recent weeks purchases of light gage sheets by Japanese buyers have been in good volume. It is estimated that since Oct. 1 black sheet buying from American mills has totaled close to 22,000 tons, mostly for December-January shipment, some for January-February delivery. Sheet prices continue unchanged at $82.50 to $83 per ton, c.i.f. Japan.

Other Far Eastern markets are quiet, particularly China. Although there are apparently plenty of wire shorts available for shipment to Chinese merchants, there is practically no demand for this product, nor is there any inclination to negotiate for tin plate waste waste or second-hand steel plates and similar material.

American tin plate mills have advanced export prices and are quoting from $4.80 to $4.90 per base box, f.o.b. Pittsburgh, on export tonnages. A large inquiry for tin plate that is expected to appear in a few days is from the Nippon Oil Co. in Japan and calls for about 57,000 base boxes. Among other inquiries in the market from Japan are about 200 tons of electrical sheets for the Shibaura Engineering Co. Bids have been opened by Yokohama municipality on 12 miles of high T-rails and 2 miles of guard rails but award is not yet announced. The splice bars for the Imperial Government Railways are also pending award. Of the 800 tons of blue annealed sheets of about No. 17 gage, recently inquired for by the Dai-Nippon Fertilizer Co., 390 tons were placed with American mills, as previously reported, and the remainder of the tonnage is understood to have gone to Japanese makers.

Steel Import Business Relatively Quiet

Importers of European steel in New York report business as quiet, being unable to book the large tonnages that were possible when prices were lower. Current quotations on bars range from 1.90c. to 2c. per lb., c.i.f., duty paid, and corrugated bars range from 2c. to 2.10c. per lb., c.i.f., duty paid. With an early settlement of the British strike, however, importers are expecting slightly lower prices, despite the possibility of curtailment of the present high output fixed by the International Steel Cartel. While most of the current business being booked by importers is in small lots of less than 100 tons, one in New York sold several hundred tons in the Boston district last week, and there have been several small lots purchased in the New York district recently.

Leipzig Trade Fair to Be Held in March

The Leipzig Trade Fair will be held from March 6 to 12, 1927. The fair is expected to include about 12,000 exhibits, a gain of more than 300 per cent over any pre-war fair. From previous experience it is estimated that more than 150,000 buyers from upward of 50 countries will attend. The United States will be better represented than ever before, it is stated, both as exhibitor and buyer. There will be included some 2300 exhibits of machinery and 1500 exhibits of metal wares. The United States office of the Leipzig Trade Fair, Inc., is at 630 Fifth Avenue, New York.

Retail prices of the principal articles of food in the United States have averaged higher in the first ten months of 1926 than in any year since 1920. This average of 160.0, based on 1913 at 100, is the same as the October figure. It compares with 157.4 average for the 12 months of 1925 and with about 146 for both 1924 and 1923.

Business Analysis and Forecast

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

Favorable and Unfavorable Factors Affecting Business May Be Summarized as Follows:

Favorable Factors

1. Easier trend in money rates and strong bank credit.
2. Payrolls large and up in October.
3. Large volume of retail trade (especially urban.)
4. Strong cash position of most leading corporations.
5. Light mercantile inventories.
6. Possible tax reduction.

Unfavorable Factors

1. Decline in building activity.
2. Decline in automobile industry.
3. Decline in commodity prices.
4. Farm prices relatively low; declining trend of mail order sales.
5. Export trend down; imports up.
6. Manufacturing inventories large.
7. Political uncertainties.

UNFAVORABLE factors are the more fundamental and seem to be clearly predominant at present. As long as money and credit conditions continue so easy, however, and both factory payrolls and retail trade continue so large, no drastic major recession is probable.

TRENDS both of railroad freight traffic and bank debits now show that business activity has passed the peak of a "cycle," that industrial conditions are very irregular and that on the whole the trend is slightly downward. An unbiased study of the first chart must give these general impressions.

Remembering that the two curves are adjusted to eliminate the merely seasonal changes, it may be said that the situation in October resembles in some respects that which existed in the middle of 1925, although both traffic and the volume of checks drawn are at higher levels than then. At both times there was an irregular decline in bank debits. The advance in railroad freight traffic was checked and both indexes were hesitating, as though about to enter a period of decline. In the middle of 1925, however, commodity prices were higher than now and rising. The P-V Line barometer was also higher and was not declining as now. Building activity, too, was on the up-grade and the steel industry was at the beginning of a wave of expansion. The stock market was in a broad upward trend.

Above all, the middle of 1925 reflected to some extent a not uncommon summer dullness, while in October we would expect a normal seasonal peak of business for the year. Weakness at this time is more significant.

Upward Trend No Longer Exists

INDICATIONS now are that the index of bank debits will be lower in November than in October, since recent weeks have fallen below the October average. The same is probably true of railroad tonnage. The two chief items of railroad traffic consist of building materials of all kinds and coal, and, since building activity is decreasing and the temporary boom in coal is about to subside, traffic probably will show more than the usual seasonal decline. This conclusion is confirmed by the rather depressed condition in large agricultural sections.

We would emphasize the fact that there has been

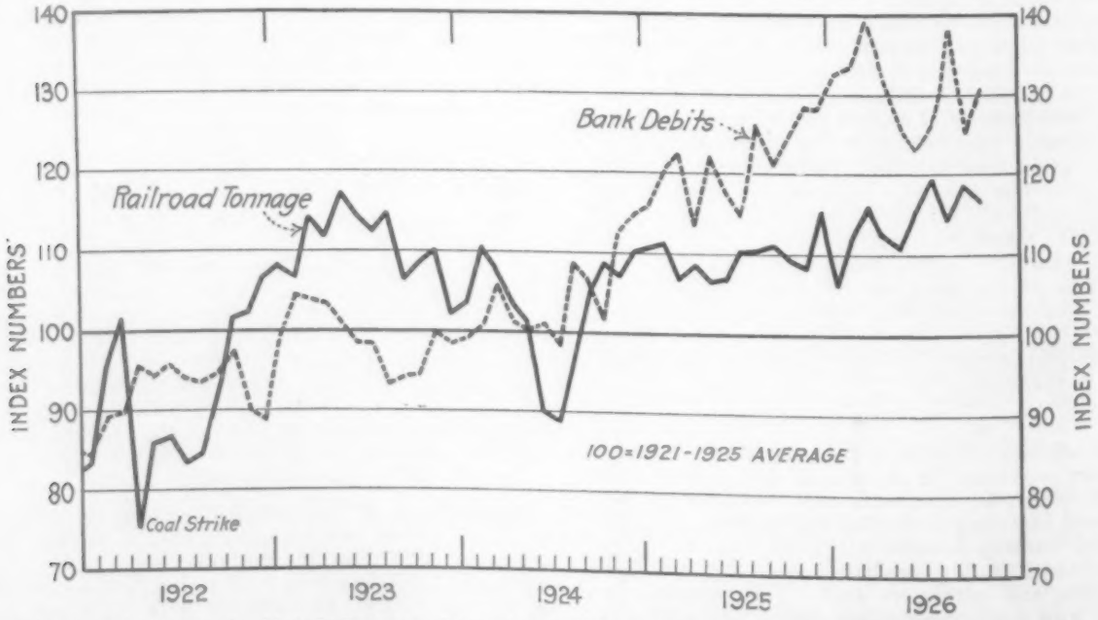


Fig. 1—Similarity Is Noted Between Present Conditions and Those of Mid-1925. Both bank debits and freight tonnage show hesitation and indicate the slightly downward trend occurring after business activity has passed its peak

In This Issue

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Business Analysis and Forecast

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

Favorable and Unfavorable Factors Affecting Business May Be Summarized as Follows:

Favorable Factors

1. Easier trend in money rates and strong bank credit.
2. Payrolls large and up in October.
3. Large volume of retail trade (especially urban.)
4. Strong cash position of most leading corporations.
5. Light mercantile inventories.
6. Possible tax reduction.

Unfavorable Factors

1. Decline in building activity.
2. Decline in automobile industry.
3. Decline in commodity prices.
4. Farm prices relatively low; declining trend of mail order sales.
5. Export trend down; imports up.
6. Manufacturing inventories large.
7. Political uncertainties.

UNFAVORABLE factors are the more fundamental and seem to be clearly predominant at present. As long as money and credit conditions continue so easy, however, and both factory payrolls and retail trade continue so large, no drastic major recession is probable.

TRENDS both of railroad freight traffic and bank debits now show that business activity has passed the peak of a "cycle," that industrial conditions are very irregular and that on the whole the trend is slightly downward. An unbiased study of the first chart must give these general impressions.

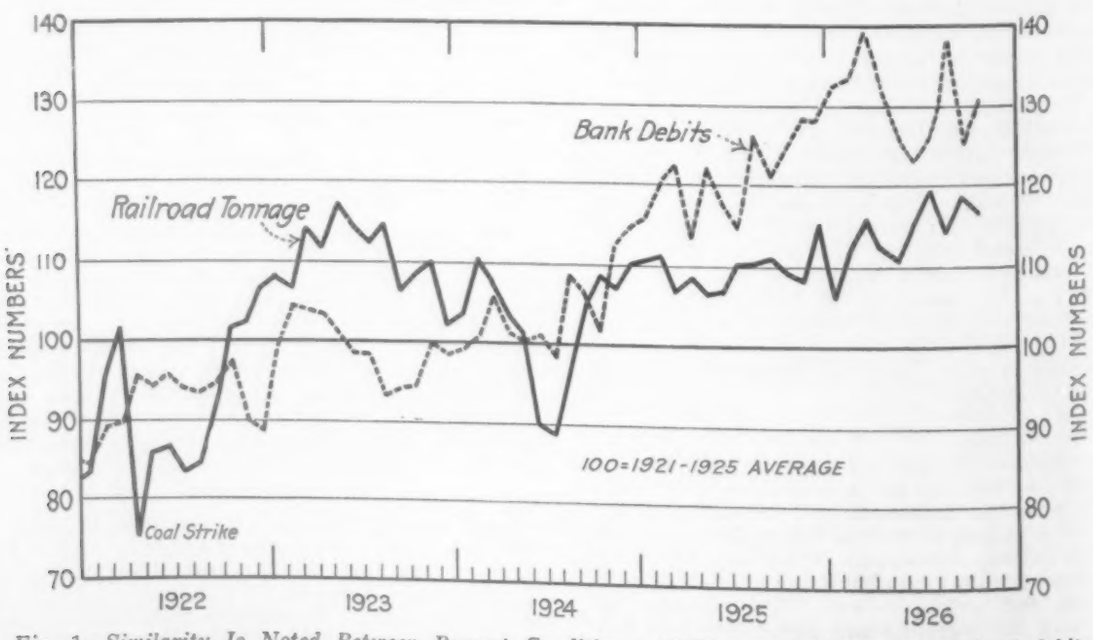
Remembering that the two curves are adjusted to eliminate the merely seasonal changes, it may be said that the situation in October resembles in some respects that which existed in the middle of 1925, although both traffic and the volume of checks drawn are at higher levels than then. At both times there was an irregular decline in bank debits. The advance in railroad freight traffic was checked and both indexes were hesitating, as though about to enter a period of decline. In the middle of 1925, however, commodity prices were higher than now and rising. The P-V Line barometer was also higher and was not declining as now. Building activity, too, was on the up-grade and the steel industry was at the beginning of a wave of expansion. The stock market was in a broad upward trend.

Above all, the middle of 1925 reflected to some extent a not uncommon summer dullness, while in October we would expect a normal seasonal peak of business for the year. Weakness at this time is more significant.

Upward Trend No Longer Exists

INDICATIONS now are that the index of bank debits will be lower in November than in October, since recent weeks have fallen below the October average. The same is probably true of railroad tonnage. The two chief items of railroad traffic consist of building materials of all kinds and coal, and, since building activity is decreasing and the temporary boom in coal is about to subside, traffic probably will show more than the usual seasonal decline. This conclusion is confirmed by the rather depressed condition in large agricultural sections.

We would emphasize the fact that there has been



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When Will the World Buy Steel?

IMPROVEMENT in steel consumption by the world in general has been disappointingly slow. Europe naturally is particularly aware of the fact. The question is vitally interesting even to us, who are regarded as so self-sufficient. When our exports take an amount exceeding, say, 8 or 9 per cent of our production, they parallel, if they do not make for, an active domestic situation. When they do, they reflect activity in so-called neutral markets, and imports here are likely to be of relatively little concern.

What one would like to have forecast is the time when world demand will rise to desired proportions. Does the gradual growth of steel buying portend a catching-up very rapidly with productive capacity? Will the demand be enough "to go around?" Observations on this subject have been made repeatedly in these columns, and notable is the study in the issue of last week, "How Much Steel Can We Export?"

For News Summary See Reverse Side

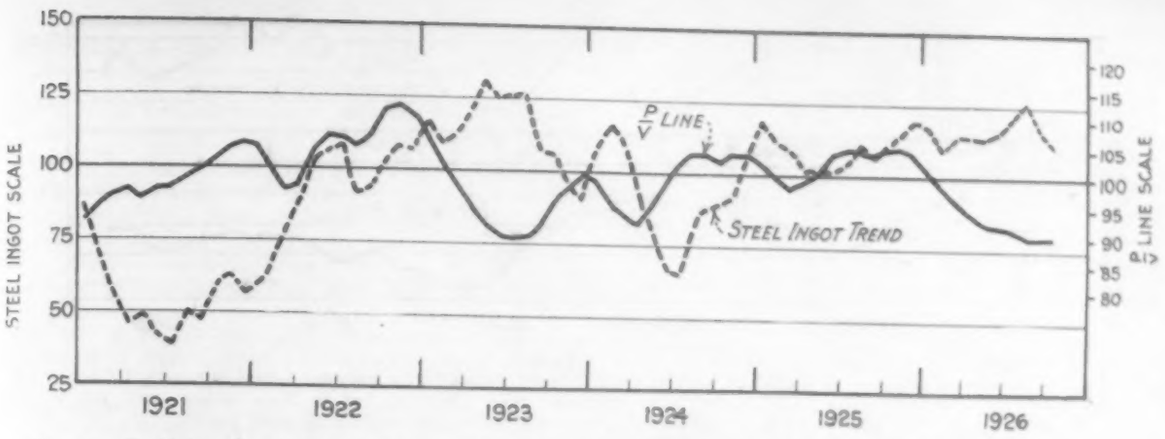

Fig. 2—Declining Ingot Trend Accompanies a Low Position of the P-V Line—the Lowest in More Than Three Years. P-V represents the ratio of commodity prices to the physical volume of trade. It generally anticipates the trend of business by about five months

no such indication of decline at this season in either of the past two years, which years have covered the period of upward trend in the current business cycle. Conditions this fall certainly indicate that the upward trend no longer exists.

Ingots and P-V Line Point Downward

AS forecast a month ago, production of steel ingots has declined. In October it failed to make the grade of the usual seasonal gain and it will doubtless be lower in November. Steel ingot production seems likely to fall to normal by the end of the year.

This same relative movement of our P-V Line and the curve of ingot production occurred, it will be remembered, in 1923. Of course, there are differences between the two periods. The P-V Line this year has not declined so sharply as in 1923 and has not turned upward as the year-end approaches. Nineteen-twenty-six is the first year since 1920 in which this important barometer has not risen in the second half of the year.

It is true that the decline in the barometer has been checked, but even if some rise is to come it will be unusually late and small. The trend of commodity prices does not promise to be upward and this trend is an important factor in determining the course of the P-V Line. Its low level and continued weakness mean that in general demand is inadequate to absorb the available supplies of commodities, at least at present prices. They forecast increased competition and lower margins of profit for business in general during the next few months.

Unfilled Orders and Steel Scrap

OUR two steel barometers both pointed downward in October, which is the first time that this could be said since last April (see the third chart).

The unfilled orders of the United States Steel Corporation increased in October, but the gain was so small that it hardly equaled the purely seasonal increase that normally occurs in that month. Conse-

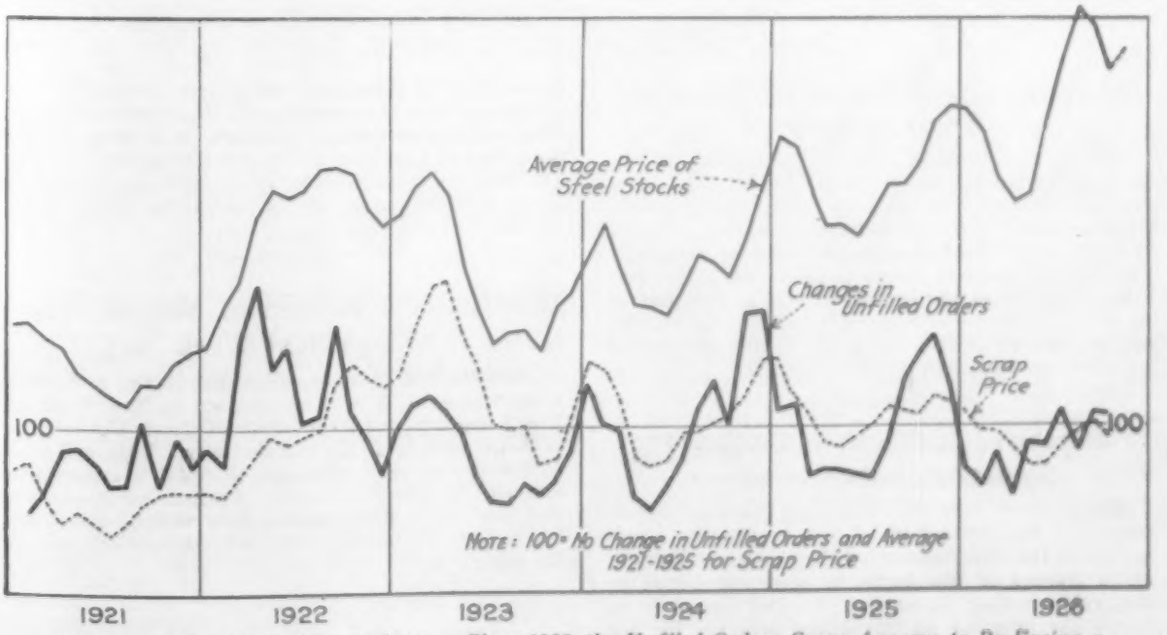

Fig. 3—For the First Time in Autumn Since 1922, the Unfilled Orders Curve Appears to Be Facing a Decline. At the same time, the price of heavy melting scrap at Pittsburgh was lower. That steel securities continue high is due to heavy surplus funds of leading factors

Schedule of the next installments of the **Business Analysis and Forecast,** *by Dr. Lewis H. Haney, Director New York University Bureau of Business Research, follows:* **Dec. 16**—*Activity in Steel Consuming Industries;* **Dec. 23**—*Position of Iron and Steel Producers;* **Dec. 30**—*General Business Outlook*

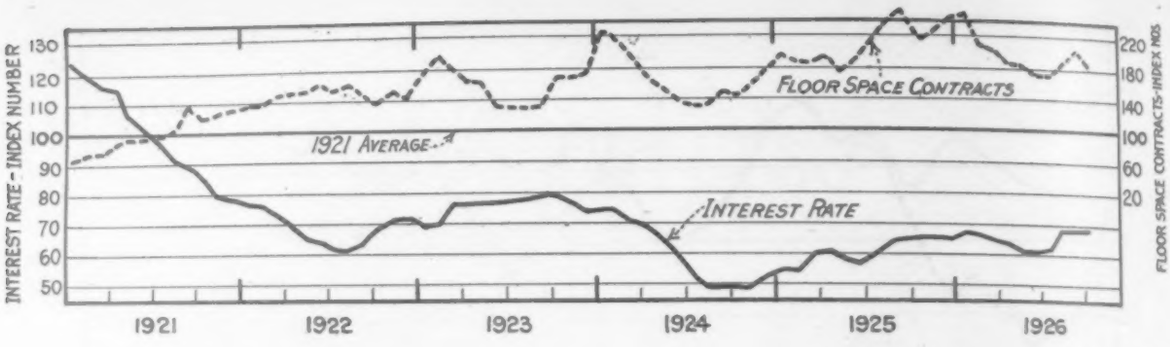

Fig. 4—Renewed Decline in Building Activity Is Shown Here. The autumn spurt appears to have spent itself. Interest rates have shown little change since August, but if they should ease for a time, speculative building may show recovery before the middle of next year

quently, when we eliminate the seasonal factor, a small decline appears in comparison with the preceding month. The curve gives the impression of rounding off in the direction of a decline. This is the first time since 1922 that such an impression could have been gained of the autumn months.

The same may be said of steel sales. Indeed, the curve showing changes in unfilled orders usually gives a good picture of the trend of sales of the Steel Corporation.

The price of heavy melting steel scrap at Pittsburgh averaged lower in October than in September. The average for November will be at least as low as the October figure and, judged by present trends, probably a little lower. Thus it confirms the unfilled orders barometer in indicating a further recession in the iron and steel industry.

In October steel stocks as a group averaged the lowest since last June. The average is still high in comparison with the two barometers, but it should be remembered that such barometers have their value in indicating turning points rather than in showing levels. The relatively high price of steel securities is due to the large surpluses possessed by such successful companies as the United States Steel Corporation. A conservative reading of the barometers merely indicates that no new high levels are to be expected in steel stocks as a group.

Building Activity Less Pronounced

RENEWED decline in building activity is shown in the fourth chart. *New contracts in October amounted to only 72,393,000 sq. ft. of floor space against 74,474,000 sq. ft. in September and 82,577,000 sq. ft. a year ago. The decrease last month was greater than any merely seasonal changes could explain, and the trend is, therefore, downward.*

Through October the trend of interest rates continued slightly upward, making due allowance for seasonal factors. More recently, however, an easier tone has prevailed in the money market. The fact that the supply of money and credit is still so abundant is one of the chief reasons why we anticipate no sharp recession in building, but merely an irregular, gradual decline which will reflect the higher levels to which interest rates have advanced since the end of 1924. If interest rates continue to ease for a time, as now seems not at all improbable, speculative building activity may show some recovery before the middle of next year.

Syracuse Plow Manufacturer Acquires Ohio Company

The Syracuse Chilled Plow Co., Syracuse, N. Y., has acquired the Hoover Mfg. Co., Avery, Ohio. The purchase of the Avery company, which specialized in manufacturing machines for digging potatoes, will add from 100 to 175 employees to the Syracuse company's payroll. The plant at Avery is being dismantled and it is expected that the equipment will be installed in the works of the plow company in this city by December, so that manufacturing of the potato harvesting machines can start Jan. 1.

Bureau of Standards to Celebrate Twenty-fifth Anniversary

WASHINGTON, Nov. 23.—Plans are practically completed for the celebration of the twenty-fifth anniversary of the establishment of the Commerce Department's Bureau of Standards, to occur, as stated in these columns Oct. 28, on Dec. 4. The committee in charge has provided an interesting program for the guests who will visit the bureau on that day. "Open house" will be kept from 10 till 5 o'clock, and from 12 to 2 luncheon will be served in the industrial building. In the evening the bureau's staff will act as hosts at a dinner at the New Willard Hotel.

The bureau was created by act of Congress on March 3, 1901. It took over the duties of the old division of weights and measures of the Coast and Geodetic Survey. From 1901 till 1903 it came under the Treasury Department. In 1903 it was transferred to the Department of Commerce and Labor, now the Department of Commerce. Originally housed in temporary quarters near the Capitol, it now occupies more than a dozen permanent buildings on a large site at the corner of Van Ness Street and Connecticut Avenue. The staff, which numbered 14 in 1901, has grown to about 800, two-thirds of the employees being scientifically trained.

Will Resume Bethlehem Merger Hearings Next Week

WASHINGTON, Nov. 23.—Hearings in the Bethlehem merger case which will be resumed in New York on Dec. 1 are expected by the Federal Trade Commission to last a week or 10 days in that city. They will then be transferred to Washington, where it is expected to complete the direct testimony. Present indications are that this will require three or four weeks. The Bethlehem Steel Corporation will then present its side of the case.

Milton Mfg. Co. in Receivership

Following a meeting of creditors on Nov. 16, application was made for the appointment of receivers for the Milton Mfg. Co., Milton, Pa., makers of iron and steel bars, bolts, nuts, washers, etc. Federal Judge Albert W. Johnson, at Lewisburg, Pa., subsequently announced the appointment of W. Walter Wilson, president First National Bank of Milton, and State Senator Charles Steele of Northumberland, Pa. The receivers will operate the plant until financing can be arranged that will give the company additional working capital.

FABRICATED STRUCTURAL STEEL

Awards Above Average of Recent Weeks—New Projects Total Over 40,000 Tons

With a total of nearly 33,000 tons, the week's structural steel awards were above the average of recent weeks, and the volume of new jobs up for bids was equally surprising, totaling more than 40,000 tons. Of the projects awarded there were two of 5000 tons each, a motion picture theater in Detroit and a hotel in Milwaukee, and one of 3000 tons, a motion picture theater in St. Louis. New work includes an office building in Detroit that will take 8000 tons and one in New York of 7000 tons. Awards follow:

PHILADELPHIA, 1000 tons, Forrest Theater, Market and Twenty-first Streets, to Belmont Iron Works.

POTTSVILLE, PA., 400 tons, theater for Chamberlain Amusement Co., to unnamed fabricator.

HANOVER, PA., 200 tons, cigar factory, to Dietrich Brothers.

AKRON, OHIO, 400 tons, Seiberling Rubber Co., to Burger Iron Works.

BOSTON-CAMBRIDGE, 2000 tons, three bridges, to Phoenix Bridge Co., Boston.

SOMERVILLE, MASS., 690 tons, First National Stores, warehouse and bakery, to New England Structural Co.

WORCESTER, MASS., 292 tons, roundhouse and machine shop, Boston & Albany Railroad, to Levering & Garrigues Co.

CAMBRIDGE, MASS., 130 tons, candy factory, to New England Structural Co.

NEW YORK, 1450 tons in the following awards as reported to the Structural Steel Board of Trade: Four-story club building, 152-156 West Eighty-fifth Street, and 14-story apartment building, Fifth Avenue and Eighty-third Street, to A. E. Norton, Inc.

NEW YORK, 1700 tons, 13-story apartment building, Park Avenue, Seventy-second and Seventy-third Streets, to Easton Structural Steel Co.

NEW YORK, 550 tons, nine-story apartment building, 123-131 East Eighty-fourth Street, to Hinkle Iron Co.

NEW YORK, 600 tons, motion picture theater, East Tremont Avenue, to Dreier Iron Works.

NEW YORK, 500 tons, motion picture theater, Longfellow Avenue, Bronx, to Oltmer Iron Works.

NEW YORK, 1350 tons, addition to subway repair shops at Lenox Avenue and 148th Street, to American Bridge Co.

NEW YORK, 475 tons, public school No. 189 in the Bronx, to an unnamed fabricator.

NEW YORK, 1450 tons, two apartment buildings, to Harris Structural Steel Co.

BROOKLYN, 2000 tons, motion picture theater for Fox Film Corporation, to McClintic-Marshall Co.

NEWARK, N. J., 250 tons, office building, to Oltmer Iron Works.

BALTIMORE, 580 tons, bakery and garage for Ward Baking Co., to Dietrich Brothers.

DETROIT, 5000 tons, motion picture theater for Fox Film Corporation, to McClintic-Marshall Co.

INDIANAPOLIS, 500 tons, War Memorial building to Central States Bridge Co.

CINCINNATI, 600 tons, building for John Van Range Co., to an unnamed fabricator.

LOUISVILLE, 150 tons, administration building at University of Louisville, to Grainger & Co., Louisville.

LOUISVILLE, 100 tons, building for Louisville Water Co., to Grainger & Co.

MILWAUKEE, 5000 tons, Hotel Schroeder, to Worden-Allen Co.

BELOIT, WIS., 200 tons, W. E. Karlem Garage, to Worden-Allen Co.

OCONTO FALLS, WIS., 175 tons, State highway bridge, to Milwaukee Bridge Co.

MILWAUKEE, 100 tons, apartment building for Irving Benesch Co., to Milwaukee Bridge Co.

NORTHERN PACIFIC, 215 tons, bridge spans, to St. Paul Foundry Co.

MINNEAPOLIS, 165 tons, undergrade highway crossings, to Minneapolis Steel & Machinery Co.

ST. LOUIS, 190 tons, factory building for the Wurdack Electric Co., to Stupp Brothers Bridge & Iron Co., local.

ST. LOUIS, 3000 tons, motion picture theater for Fox Film Corporation, to McClintic-Marshall Co.

LOS ANGELES, 310 tons, one 80,000-bbl. tank for the Shell Oil Co., to Llewellyn Iron Works.

LOS ANGELES, 930 tons, three 80,000-bbl. tanks for the California Petroleum Corporation, to Western Pipe & Steel Co.

SAN FRANCISCO, 100 tons, apartment building on Lombard Street, to Schrader Iron Works, San Francisco.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

NEW HAVEN, CONN., 1950 tons, office building for Union & New England Trust Co.

NEW YORK, 7000 tons, office building on West Broadway.

NEW YORK, elevated railroad connection between Broadway-Fourth Avenue line and Coney Island yard; bids being taken by City of New York.

NEW YORK, 250 tons, addition to building of Title Guarantee & Trust Co., 176 Broadway.

PHILADELPHIA, 700 tons, bridge in Overbrook section for the Pennsylvania Railroad.

PHILADELPHIA, 175 tons, Ridge Avenue bridge for Reading Railroad.

PHILADELPHIA, 700 tons, steam station at Ninth and Willow Streets for Philadelphia Electric Co.

PASSAIC, N. J., 500 tons, bridge for State of New Jersey.

ATLANTIC CITY, N. J., 500 tons, Albany Avenue bridge.

DETROIT, 8000 tons, Penobscot Building.

TOLEDO, OHIO, 500 tons, foundry for Southern Car Wheel Co.

MOUNT VERNON, N. Y., 250 tons, bridge for Westchester County Park Commission.

UTICA, N. Y., 400 tons, municipal auditorium and gymnasium.

SYRACUSE, N. Y., 1500 tons, Loew's theater and office building.

ATLANTIC CITY, N. J., 1000 tons, apartment building on Illinois Avenue.

PHILADELPHIA, 400 tons, two sub-stations.

WILMINGTON, DEL., 800 tons, linoleum manufacturing plant for J. F. Darling.

WILMINGTON, 750 tons, highway bridge for State of Delaware.

DETROIT, 2000 tons, Federal Reserve Bank Building; bids in.

CINCINNATI, 240 tons, plant addition for Chevrolet Motor Co.; general contract to Ferro Concrete Construction Co.

CINCINNATI, tonnage unknown, building for Goldsmith Metal Lath Co.; bids in.

EVANSVILLE, IND., 150 tons, round house for Louisville & Nashville Railroad; bids in.

CHICAGO, 4500 tons, central court and police building; American Bridge Co., low bidder.

CEDAR RAPIDS, IOWA, 1800 tons, memorial building.

LYMAN, NEB., 750 tons, addition to a sugar refinery.

ST. LOUIS, 700 tons, unit of St. Louis municipal waterworks plant on Missouri River.

SEATTLE, WASH., 1200 tons, building for the Frank Warehouse Co.; bids being taken.

OAKLAND, CAL., 100 tons, municipal garage for the city of Oakland; bids have been rejected.

LOS ANGELES, 2000 tons, office building for the Title Insurance & Trust Co.; Scofield Engineering Co., general contractor.

LOS ANGELES, 1450 tons, church building.

Railroad Equipment

With additional orders for 95 locomotives, of which 75 are for the Pennsylvania and 20 for the Western Maryland, the Baldwin Locomotive Works now has orders on its books for about 200 engines. The Missouri Pacific may soon order 48. Inquiries for cars total 1075, and 401 were ordered in the week. Details of awards and inquiries follow:

The Pennsylvania Railroad has ordered 75 locomotives from the Baldwin Locomotive Works.

The Western Maryland has ordered 20 locomotives from the Baldwin Locomotive Works.

The Missouri Pacific, which has inquired for 48 locomotives, is expected to order these shortly.

The Rock Island will receive bids on 5 diners, 10 coaches, 40 suburban, 4 baggage smoker, 4 baggage mail and 10 baggage cars.

The Long Island placed 4 baggage and 5 cabin cars with the American Car & Foundry Co.

The Denver & Rio Grande Western is in the market for 10 Mallet type locomotives.

The Fruit Growers Express is in the market for 400 steel underframes.

The Lehigh Valley has inquired for 500 70-ton hopper cars and 200 50-ton automobile cars.

The Atlantic Coast Line is inquiring for 100 ballast cars.

The Chicago & North Western has inquired for 250 ore cars. It will build 500 freight cars in its own shops.

The Great Northern is in the market for 25 steel tank cars.

The Northern Pacific has ordered 25 caboose car underframes from the Pacific Car & Foundry Co.

The Northern Refrigerator Car Co. has ordered 201 refrigerator cars from the Pullman Car & Mfg. Corporation.

The Conley Tank Car Co. has ordered 200 tank cars from the American Car & Foundry Co.

The Buffalo, Rochester & Pittsburgh is getting bids on the repair of 850 hopper cars and wood box cars.

R. P. Johnson, Wytheville, Va., is inquiring for a 10-ton saddletank locomotive, 44-in. gage.

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Menace in Installment Buying?

MUCH has been written on the economies of installment buying that has now become so important a factor in American life. There is some ominous shaking of heads as to this, some dismissal of the whole subject as of no consequence, and some unmitigated approval. This is verily an instance of disagreement among the doctors.

The income of the American people in 1925 was estimated at about 73 billion dollars. M. V. Ayres, in a recent report to the third national automotive conference, reckoned that the annual sale of goods on the installment plan is about 6.2 billions, whereof about 2.6 billions is outstanding at any one time, the outstanding varying but little from month to month.

The newspaper summaries of Mr. Ayres's report omit a very important figure which he may or may not have given, namely, the number of these accounts. We may guess that, at something like five million, and assume that such a number of workers is constantly owing about $500 each. This appears to be a heavy obligation upon the annual income of the average worker.

There is nothing in such a mortgaging of future earnings that in itself would produce economic disturbance. It is rather that economic disturbance would upset this system. So long as our workers continue well employed they can live up to their obligations. Let something happen that will develop widespread unemployment, as in 1921, there will necessarily be defaulting. At present we can not foresee such a development, but we can not be sure there never will be. It is here that we are skating on thin ice.

It is represented, and correctly, that installment buying is no new thing. Men have long been acquiring their homes in that way, and commendably. That such procedure is promotive of thrift is true. There is a great difference, however, between so buying a house and an automobile. The one is a durable thing. Even if it does not produce income it saves rental, wherefore some statisticians go so far as to consider that the rental value of houses owned should be included in an estimate of the national income. Not so with an automobile, which is of only ephemeral existence and generally adds to expense instead of saving.

The deplorable character of the present system of installment buying is that it is so largely directed toward consumers' goods, viz., things that are quickly going to disappear, leaving perhaps a contractual obligation on paper to show for them.

Another evil is that the carrying charges make these goods cost far more to the people than they would come to if purchased for cash out of savings previously accumulated. A business man of good credit, accustomed to borrowing money on proper collateral from his bank, would hold up his hands in holy horror on seeing the terms of automobile paper.

In short, the people of the country are soaking themselves to an extent that all the trusts together never imposed, not even previous to the days of the Sherman law. It is this condition that contributes materially to the present flushness in some lines of business and makes possible the luxury and extravagance in some of our cities.

Adaptability of Workmen

A COAL strike in Great Britain lasts a long time because the miners cannot get other employment. A coal strike in the United States lasts a long time because they do get other employment.

The strongest argument the leaders of the British coal strike have offered against acceding to an increase in working hours from seven to eight has been that the change would throw many men entirely out of employment. Assuming the same number of days employment of the mines, much more than one-eighth of the men would be thrown out, for the seven hours is not working time, since it includes time both ways between pit mouth and working face.

When there is a coal strike in the United States many of the men seek other employment, sometimes in a different line. When, as of late, there is a good supply of non-union mines some of them go to these.

The British workman is tied fast to his trade.

more often than not his father's or even his grandfather's trade. The typical American workman is not. One can see how much of the unfortunate position of British industry is due to the lack of adaptability of British workmen, not from their physical make-up but from their mental make-up, and how much better is the situation in the United States. But we lose something we might get if we let it go at that. We have here not a little British stock. Thus we have some of the same character of thought, and we need to recognize it. There has been too much disposition in some quarters to appraise the amount of work in a given job in terms of the average man, without allowance for adaptability.

We had it in the agitation that led to the elimination of 12-hour duty at blast furnaces and steel mills. Many workmen were quite content with the 12-hour duty, seeing that it involved a shorter duration of actual labor. The steel industry does not want the 12-hour day back, but in respect to many employed in it it was not in point to argue that workers in other employments would not be willing to be on duty 12 hours.

Now we have much talk about the speed Ford workmen must maintain. The opinions expressed are not based upon the make-up of the particular workmen there engaged, but upon the supposed make-up of the average workman, when there is no such thing. The work is speedy and simple. That fits some people. Others it would not fit. Some are better adapted to slow and complicated work. Men differ widely, so also do employments.

These things are being studied scientifically by competent observers. The unfortunate thing is that the knowledge thus gained does not rapidly get into common thought. The columns of THE IRON AGE have had much on these questions. For instance, in the issue of Nov. 11, page 1344, was an article the gist of which was, "No work has been found that is monotonous to every one."

Mr. Couzens on the Five-Day Week

WE are not impressed with the economic sense of Hon. James Couzens; but as he sits for Michigan in the United States Senate and therefore takes part in deliberations and votes on many things that affect our national economy—i.e., our welfare—his remarks merit attention.

In a recent interview he declared himself in favor of a five-day week of national work, not *a la* Henry Ford who, according to Mr. Couzens, will drive his men to making in five days what has been made in six, but as a temporary measure for correcting present all-around over-production.

Not even Mr. Ford can speed up his machines over night to do in five days that which now requires six, although that is the view of the American Federation of Labor in regard to manufacture in general. It is doubtful whether even Mr. Couzens thinks that, for if that were to be the result there would be no curtailment of production.

Where does Mr. Couzens get his idea of overproduction at the present time? If we were producing an excess of goods this would be reflected in accumulation of stocks, unemployment of labor, and falling prices for both commodities and labor. The statistical record of 1925 and 1926 has been just the opposite in every respect. Argument for a five-day week of work on the ground of correcting over-production is therefore no argument at all.

Public Interest in Corporations

TWO articles that may well come together appear in the December issue of *World's Work*. One is a summary by Prof. W. Z. Ripley on the subject of shareholder interest in corporations; the other is an interview with Judge Gary by Rose C. Feld.

Professor Ripley starts off by saying that "a considerable to-do occurred last winter, apparently touched off by a ten-minute academic address of mine concerning the strong disposition among bankers, having to do with financing great enterprises, to disfranchise the public shareholders, arrogating to themselves the sole power and responsibility for management." He developed his ideas further in the *Atlantic Monthly* for January. President Sloan of General Motors came back with a pointed contribution to the discussion, in the October *World's Work*.

Professor Ripley now takes it that "non-voting common stock is dead" and drops that point. He says all admit that active participation in management by the whole body of shareholders is out of the question. A digest of his recommendations cannot be given here, but he favors a continuing committee representing the stockholders at large. The advantage of stockholders' or bondholders' committees in emergencies is recognized by actual practice in numerous cases.

The lack of stockholder control is exemplified most strongly in one general class of corporations, those engaged in public service, as is indicated by some of Professor Ripley's citations. It might be said that such corporations are least likely to go wrong in their planning, for the requirements of public service are something that can be measured with much more accuracy and closeness than can the demand for commodities.

Judge Gary's interview cannot be regarded as a direct contribution to the discussion in which Professor Ripley has figured so prominently, but it throws its own light upon what these general doubts may mean in the case of the United States Steel Corporation. Judge Gary has no occasion to defend the United States Steel Corporation against a charge that its stockholders are not vested with sufficient power, for no such charge has even been made. He takes another line, that in a general way panics can be avoided if the public is kept informed. "Fair competition in business is the greatest stabilizer of industry. Business depressions and panics can be avoided if big industry will act honestly and ethically with its competitors. Panics as a rule are brought on by unscrupulous competition.

Judge Gary's review of the opposition he encountered, on the formation of the Federal Steel Co. in 1898 and the Steel Corporation in 1901, to his policy of informing the public emphasizes the great change that has occurred in public thought. The Steel Corporation's policy is no longer con-

sidered radical or revolutionary. Once it was even regarded by wealthy men as dangerous.

It is not sufficient to dismiss the matter by saying that progress has been made. The public has also been making progress in owning the securities of large corporations, and year by year it needs this policy of publicity, as exemplified by the Steel Corporation, more and more.

Wages and Living Costs

DEFINITE measure is given by the Massachusetts Department of Labor and Industry of the wage trend upward which began with the World War and continued with little interruption through 1924. The department furnishes other figures indicating that the wage level of 1925 in the same industries was certainly no lower than in 1924. The average wage paid in 1914 was $562.57. In 1924 it was $1,207.76. This is an increase of 115 per cent.

In each of the eleven years included in the survey the number of manufacturing plants represented was at least 9000. In 1924 it was 10,174. The average number of employees ranged between 600,000 and 800,000. Massachusetts is a State of multifarious and highly developed industry. The variety of its manufactured products is remarkable, including the great staples of cotton and woolen goods, shoes, machinery of wide range of purpose, metal products for a myriad of uses—in fact, nearly everything that enters into industrial, commercial and domestic life. Hence the representative character of the data as to wage increases.

The average wages paid through this period follows: 1914, $562; 1915, $580; 1916, $656; 1917, $758; 1918, $944; 1919, $1,073; 1920, $1,280; 1921, $1,107; 1922, $1,106; 1923, $1,197, and 1924, $1,207. The slump of 1921 caused a sharp drop, and there was a slight falling off in 1922. But taking a mean of the years the upward movement of the curve has been consistent.

The average estimate of the increased cost of living in the United States, comparing today with 1914, is not far from 60 per cent. Thus, were the average Massachusetts wage-earner of today to be exactly as well off in buying power as in 1914, he would require to earn $905. He actually does earn $1,207. He has $300 more to spend or save. This $300 buys less than it would have bought in 1914, but it is a worthwhile gain.

Those who have studied the Massachusetts figures see in them the source of the important increase in deposits of savings banks. They also see what has made possible (assuming that with high wages has gone high production) the very general ownership of automobiles and radio sets. When it is considered that a large percentage of families have more than one wage earner to share in increased purchasing power, it can be understood that luxury buying need not prevent the maintenance of a very healthy savings account.

High Point in Tin Plate Exports

A NEW record for all time has been made this year in American exports of tin plate. To Oct. 1 over 162,900 gross tons, or 18,100 tons per month, have been sent to foreign consumers. This is nearly 40 per cent larger than the high average of 13,400 tons per month in both 1924 and 1925 and about three times the pre-war rate of 6100 tons per month in 1913. Undoubtedly the British coal strike is largely responsible for foreign shipments of British tin plate averaging only 34,400 tons per month to Oct. 1 this year, as compared with 42,600 tons per month in 1925. It may be a long time before this year's performance in American exports is again equaled, for presumably Welsh mills will recover their hold on markets which temporarily they could not fully serve. At the same time it is to be said to the credit of domestic mills that today's larger use of American tin plate in other countries is not altogether an opportunist development. The fact is that there has been a steady increase in our tin plate exports—not alone to the Canadian canneries of the Pacific Coast—for the past three or four years.

CORRESPONDENCE

Wishes to Reach Friends of Professor Davis

To the Editor: Prof. Joseph Baker Davis died on March 9, 1920. A committee has now been appointed, with Clarence T. Johnston, professor of geodesy and surveying, University of Michigan, as chairman, to erect a suitable memorial for Professor Davis on the U. of M. campus. Subscriptions are now being received by Professor Johnston in amounts not exceeding $5, but the records that are deposited in the memorial will contain the names of all those who knew the late Professor Davis and wish to have their names so recorded, whether a contribution is made or not.

Professor Davis's friends are scattered all over the world. The problem now is to find some way to reach them. I assure you that anything that you may do to bring this to the attention of his friends will be greatly appreciated by many engineers. During the many years that Professor Davis was actively engaged in teaching at the University of Michigan, he came in contact with all engineering students, as courses in surveying and geodesy were required of mechanical and electrical engineers as well as civil engineers.

GEORGE H. FENKELL,
General manager, Department of Water Supply, Detroit.

Receiver for Youngstown Car Company

The Dollar Savings & Trust Co., Youngstown, was last week appointed receiver for the Youngstown Steel Car Co. of Niles, Ohio, in which the Youngstown Sheet & Tube Co. has holdings. Application for a receivership was filed by the First National Bank and the Commercial National Bank of Youngstown, both creditors. Obligations include $800,000 indebtedness, chiefly to banks. The company's balance sheet shows gross assets of about $2,000,000, including $225,000 in land and $800,000 in plant and equipment. Owing to the financial interest of the Sheet & Tube company in the Youngstown Steel Car Co., Frank Purnell, assistant president of Sheet & Tube, was recently named president of the car company. The plant has been idle for some time.

ORDER GENERAL RATE INQUIRY

Sweeping Investigation of Steel Rates Is Aftermath of J. & L. Case

WASHINGTON, Nov. 23.—A general investigation of rates on manufactured iron and steel throughout Official Classification territory was formally ordered by the Interstate Commerce Commission last Saturday. That a broad inquiry of this character was under consideration was indicated in THE IRON AGE of Sept. 23, page 859. It was the belief at that time that the investigation would embrace iron and steel rates throughout the country, but the plan at present is to confine it to Official Classification territory, a broad undertaking in itself. It is possible, however, that it may be made even more far reaching.

The preliminary steps for the investigation will be taken at a conference on Dec. 4 in the Merchants' Association rooms, 233 Broadway, New York. The purpose of this conference will be to perfect plans for the preparation and presentation of the exhaustive data that will be submitted and to avoid duplication, which will in turn expedite the hearing. The preliminary conference will be attended by iron and steel interests throughout the affected territory, together with civic organizations, consumers, and members of State railroad commissions. It is likely that the investigation will be in charge of Examiner Howard C. Faul. The hearing will not involve the controversy as to switching rates in the Chicago district, nor will it include pig iron rates. There is a possibility, however, that the Chicago switching rate case will be included later in the general inquiry.

The general investigation finds its origin in the Jones & Laughlin Steel Corporation case. Numerous protests resulted from the establishment of the Jones & Laughlin scale of rates on iron and steel products. Especially vigorous were complaints from the Pittsburgh steel producers, who contend that the rates set up discriminate against them in favor of the Chicago district in reaching Middle Western markets. While the scale somewhat reduced the Pittsburgh rates when compared with those previously fixed on the fifth class basis, and increased rates from the Chicago district to the destination territory, the first action taken against the scale came from the Pittsburgh district, which urged a reopening of the case, cancellation of the scale and the setting up of what the steel makers contended would be reasonable rates. There followed protests from Ohio producing points, chiefly on the ground that the scale narrowed their differentials under rates from the Pittsburgh district and therefore was prejudicial to them and preferential to the Pittsburgh district. They asked for restoration of the former relationship.

Cumberland, Md., producers protested because that district was not included in the scale. There followed other protests, either directly or indirectly based on the new adjustment of rates under the Jones & Laughlin scale. The Chicago district producers themselves filed a protest on the ground that that district was discriminated against in favor of the Pittsburgh district in reaching markets to the East, especially as far as the Indiana-Ohio line. The Detroit Board of Commerce also protested.

Embraced in the proceeding is one case that had no part in the Jones & Laughlin proceeding. This concerns intrastate iron and steel rates in Ohio. The commission, under Section 13 of the commerce act, has authority to include intrastate rates in an inquiry where they may affect interstate rates to the extent of involving discrimination. The Ohio case was instituted by the carriers.

The inquiry was ordered under the so-called Hoch-Smith resolution enacted by Congress, which calls for a general investigation of the rate structure of the country when the commission feels it is necessary. The iron and steel inquiry, issued under Order No. 6, plainly reflects the fact that the commission is of the opinion that the rate structure has become tangled and that, in view of the many protests from the iron and steel manufacturers, consumers, and others, it is necessary to make a clean sweep by an inquiry in an effort to set up a structure that will be more equitable.

As a result of the order for the general inquiry, the hearings that were set for Dec. 1 at Pittsburgh in connection with the Jones & Laughlin case have been canceled. They were to have been in charge of Mr. Faul, who now probably will be assigned to the general investigation.

The formal order calls for the consolidation of seven cases, including the Ohio intrastate rates. The complainants in the other six cases are the Cleveland Chamber of Commerce, the Jones & Laughlin Steel Corporation, the Cumberland Steel Co., the American Rolling Mill Co., the Inland Steel Co., and the Detroit Board of Commerce.

MORE STEEL CASTINGS

Bookings in October Highest Since July—1926 Well Ahead of Last Year

WASHINGTON, Nov. 23.—Commercial steel castings totaling 72,270 net tons were booked in October, against 65,151 tons in September, according to reports received by the Department of Commerce from the principal manufacturers. The October bookings were 56 per cent of capacity, compared with 51 per cent in September and with 59 per cent in October, 1925. The 108 reporting concerns, with present monthly capacity of 128,470 tons, represent more than 80 per cent of the commercial steel castings capacity of the country. Of their total, 59,200 tons usually are devoted to railroad specialties and 69,270 tons of miscellaneous castings.

Production of steel castings in October amounted to 77,420 tons, or 60 per cent of capacity, against 77,315 tons, or 60 per cent of capacity, in September. Of the bookings in October, 27,822 tons, or 47 per cent of that class of capacity, was for railroad specialties, while 44,448 tons was for miscellaneous castings, representing 64 per cent of that kind of capacity.

For the 10 months ended with October, bookings amounted to 815,800 tons, against 716,918 tons for the corresponding period of 1925. Production for the 10 months ended with October aggregated 905,229 tons.

To Hold New Haven Machine Tool Exhibition Biennially

The New Haven machine tool exhibition hereafter will be held biennially in the odd years. Harry R. Westcott, chairman of the machine tool exhibition committee, says that the committee feels that the unique character and unique purpose of the exhibition warrant its continuance. "The reasons for our taking this attitude are as follows: The educational character of the exhibition; its emphasis on new developments; its non-profit-making policy; its program of technical sessions; the auspices under which it is held; its geographical location (in New England, the cradle of the machine tool industry); and, most of all, the earnest support and encouragement received from machine tool builders who are our exhibitors."

Westinghouse Company Expands at Mansfield, Ohio

Concentration at its Mansfield, Ohio, plant of the production of electrical household equipment by Westinghouse Electric & Mfg. Co. and the making of Mansfield the center of sales activities for these lines have necessitated an extension to the office building and the building of a warehouse. A floor is being added to the present general office building at Fifth Street and Pennsylvania Railroad, which will be ready for occupancy on Jan. 1, and will add 8000 sq. ft. of floor space. A new four-story warehouse on Wayne Street will be used for storage of material and manufactured goods and will eventually provide space for an increase in manufacturing area. This building, 140,000 sq. ft., will be ready March 1, making the total plant area about 478,500 sq. ft.

Iron and Steel Markets

Consumers Keeping Stocks Low

Center Effort on Low Inventories—Finding Price Irregularities, Are Apathetic Toward Contracting—Rail Rollings Help Maintain Operations

NO marked change has occurred in the week in the steel market. Orders still run 10 to 20 per cent under the October rate and production is only fractionally lower than a week ago. Without the incentive of an expanding demand and stiffening prices, consumer efforts are centered to an extent rarely so pronounced on passing through the inventory season with the irreducible minimum of stocks. Contracting for first quarter is at a low ebb and the bulk of such buying is not looked for until after the turn of the year.

One factor which makes for the sustained operations is the heavy production of rails. Chicago reports ingot output unchanged, and the entire Pittsburgh district remains at 70 to 75 per cent of capacity. Yet some independent companies are off 5 per cent from the output of one and two weeks ago. A Steel Corporation blast furnace at South Chicago was blown out, but a Carnegie stack and a new one of the Weirton Steel Co. were put into operation.

Railroad business has been notable. Three roads placed 25,000 tons of rails with Chicago mills and 10,000 tons were put under inquiry. The Baldwin Locomotive Works has booked 75 engines for the Pennsylvania Railroad and 20 for the Western Maryland, making nearly 200 ordered in two weeks. Although fewer freight cars were reported in need of repairs on Nov. 1 than at any time in five years, car builders look for early large-scale buying. New inquiries are for a total of 1075 cars.

Steel centers generally report betterment in automobile steel demand. Releases on recently suspended shipments will care for this year's needs, however, and no increase in current demand is expected. The present daily output of motor cars by Michigan builders is put at 14,000.

Price irregularities in sheets are more pronounced and point to difficulties in establishing the levels set for first quarter buying. Against 3.10c., base, for black sheets for such shipment, 2.95c. has been named and even 2.90c., with corresponding concessions on blue annealed sheets, but more stiffness is shown in the galvanized product, with firmness in automobile qualities.

Makers of cold finished bars, strip steel and bolts and nuts have opened their books for the first quarter at prevailing prices except in the case of the cold finished bars, on which a $2 a ton advance is asked. Consumers show at the moment an apathetic attitude, though buyers of the bars were likely able to do some covering prior to the announcement. Cold-finished bar mill capacity, which is large, is about 50 per cent engaged.

Dips in cold-rolled strip steel have developed as low as 3c., Cleveland mills, in round lots. A plan to fix a price on small lots and apply discounts from this on larger lots has not yet found wide adoption.

Prices on the heavy tonnage products—bars, plates and shapes—remain notably firm, save in the case of small sizes of bars available from a Cleveland mill and occasionally on carload lots, which now and then bring no more than the tonnage purchase.

In plates, the oil industry has helped materially to swell demand in a year in which railroads have taken relatively little. Of the October fabricated plate bookings of 33,137 tons, substantially the amount of September, oil storage tanks took over 60 per cent. The ten months' requirements of tank and other plate structures were in excess of those of the entire year both in 1925 and 1924. New business included 10,000 tons for tanks for a new oil district in Oklahoma.

Structural steel awards of the week were 33,000 tons, well above the average of the past two months, and a revival of interest in building work is indicated by inquiries aggregating more than 40,000 tons, many in the West. A hotel in Milwaukee and a theater in Detroit, each taking 5000 tons, and a theater in St. Louis, 3000 tons, were closed. Projects include 8000 tons for a Detroit office building, and 7000 tons for a New York office building. An office building for the Grand Central zone in New York, soon to come up for bids, will call for 30,000 tons or more.

Total fabricated steel bookings in October represented 67 per cent of capacity, against 60 per cent in September.

Reinforcing steel sales amounted to nearly 11,000 tons, including 3750 tons for a sewage disposal plant in Illinois.

With the fuel situation no longer an uncertainty, pig iron producers are more anxious sellers, but consumers, many of whom have wholly or partly covered their requirements for first quarter at prices below those now prevailing, show little interest and sales are at a minimum in all districts. The automotive industry, which suspended some shipments last month, is taking iron a little more freely. Pig iron prices are slightly easier in some districts.

With Straits tin at 72.50c., New York, the highest price since 1919, consumers have been heavy buyers on the advance. A tight market is predicted for the rest of the year.

Exports of iron and steel dropped in October to 172,070 tons from 182,071 tons in September. Imports were also lower, 81,830 tons, against 85,484 in September.

No change has occurred in either of THE IRON AGE composite prices this week, finished steel remaining for the seventh week at 2.453c. per lb. and pig iron for the second week at $20.13 per ton. Finished steel is slightly higher than a year ago; pig iron is $1.42 lower than then.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous

For Early Delivery

Pig Iron, Per Gross Ton:	Nov. 23, 1926	Nov. 16, 1926	Oct. 26, 1926	Nov. 24, 1925
No. 2, fdy., Philadelphia	$23.26	$23.26	$21.76	$23.26
No. 2, Valley furnace	19.00	19.00	18.50	20.50
No. 2, Southern, Cin'ti	23.69	23.69	23.69	24.69
No. 2, Birmingham	20.00	20.00	20.00	21.00
No. 2 foundry, Chicago*	21.00	21.00	21.00	23.00
Basic, del'd eastern Pa.	23.00	23.00	21.00	22.50
Basic, Valley furnace	18.50	18.50	18.00	20.00
Valley Bessemer, del. P'gh	21.76	21.76	21.26	22.76
Malleable, Chicago*	21.00	21.00	21.00	23.00
Malleable, Valley	19.00	19.00	18.50	20.50
Gray forge, Pittsburgh	20.26	20.26	19.76	21.76
L. S. charcoal, Chicago	27.04	27.04	27.04	29.04
Ferromanganese, furnace	100.00	100.00	88.00	115.00

Rails, Billets, etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Light rails at mill	36.00	36.00	36.00	36.96
Bess. billets, Pittsburgh	35.00	35.00	35.00	35.00
O.-h. billets, Pittsburgh	35.00	35.00	35.00	35.00
O.-h. sheet bars, P'gh	36.00	36.00	36.00	36.00
Forging billets, P'gh	40.00	40.00	40.00	40.00
O.-h. billets, Phila	40.30	40.30	40.30	40.30
Wire rods, Pittsburgh	45.00	45.00	45.00	45.00
	Cents	Cents	Cents	Cents
Skelp, grvd. steel, P'gh, lb.	1.90	1.90	1.90	1.90

Finished Iron and Steel, *Per Lb. to Large Buyers:*	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.22	2.22	2.22	2.22
Iron bars, Chicago	2.00	2.00	2.00	2.00
Steel bars, Pittsburgh	2.00	2.00	2.00	2.00
Steel bars, Chicago	2.10	2.10	2.10	2.10
Steel bars, New York	2.34	2.34	2.34	2.34
Tank plates, Pittsburgh	1.90	1.90	1.90	1.90
Tank plates, Chicago	2.10	2.10	2.10	2.10
Tank plates, New York	2.24	2.24	2.24	1.94
Beams, Pittsburgh	2.00	2.00	2.00	1.90
Beams, Chicago	2.10	2.10	2.10	2.10
Beams, New York	2.34	2.34	2.34	2.24
Steel hoops, Pittsburgh	2.50	2.50	2.50	2.50

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

Sheets, Nails and Wire, *Per Lb. to Large Buyers:*	Nov. 23, 1926 Cents	Nov. 16, 1926 Cents	Oct. 26, 1926 Cents	Nov. 24, 1925 Cents
Sheets, black, No. 24, P'gh	3.00	3.00	3.00	3.10
Sheets, black, No. 24, Chicago dist. mill	3.20	3.20	3.20	3.30
Sheets, galv., No. 24, P'gh	3.85	3.85	3.85	4.05
Sheets, galv., No. 24, Chicago dist. mill	4.05	4.05	4.05	4.25
Sheets, blue, 9 & 10, P'gh	2.30	2.30	2.30	2.40
Sheets, blue, 9 & 10, Chicago dist. mill	2.50	2.50	2.50	2.60
Wire nails, Pittsburgh	2.65	2.65	2.65	2.65
Wire nails, Chicago dist. mill	2.70	2.70	2.70	2.70
Plain wire, Pittsburgh	2.50	2.50	2.50	2.50
Plain wire, Chicago dist. mill	2.55	2.55	2.55	2.55
Barbed wire, galv., P'gh	3.35	3.35	3.35	3.35
Barbed wire, galv., Chicago dist. mill	3.40	3.40	3.40	3.40
Tin plate, 100-lb. box, P'gh	$5.50	$5.50	$5.50	$5.50

Old Material, Per Gross Ton:				
Carwheels, Chicago	$14.50	$14.50	$14.50	$18.50
Carwheels, Philadelphia	16.50	16.50	17.00	18.50
Heavy melting steel, P'gh	17.00	17.00	17.50	19.50
Heavy melting steel, Phila.	15.50	15.50	16.50	17.50
Heavy melting steel, Ch'go	13.00	13.00	13.00	16.00
No. 1 cast, Pittsburgh	*16.00*	16.50	16.00	18.00
No. 1 cast, Philadelphia	*17.00*	17.50	17.50	18.00
No. 1 cast, Ch'go (net ton)	16.00	16.00	16.50	18.25
No. 1 RR. wrot., Phila.	17.00	17.00	17.00	18.50
No. 1 RR. wrot. Ch'go (net)	12.50	12.50	12.75	15.50

Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	$4.25	$4.25	$4.00	$4.00
Foundry coke, prompt	*5.00*	5.50	5.00	5.25

Metals, *Per Lb. to Large Buyers:*	Cents	Cents	Cents	Cents
Lake copper, New York	*13.87½*	14.00	14.25	14.50
Electrolytic copper, refinery	*13.50*	13.62½	13.80	14.12½
Zinc, St. Louis	*7.17½*	7.25	7.22½	8.80
Zinc, New York	*7.52½*	7.60	7.57½	9.15
Lead, St. Louis	7.80	7.80	7.90	9.50
Lead, New York	8.00	8.00	8.25	9.55
Tin (Straits), New York	**72.50**	71.00	69.12½	62.55
Antimony (Asiatic), N. Y.	**14.00**	13.25	14.00	20.00

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Pittsburgh

Steel Demand Lags But Prices Hold—Deadlock in Pig Iron Market

PITTSBURGH, Nov. 23.—New business in steel continues to recede and plant operations to work down, but manufacturers view these developments with little apparent concern, regarding them merely as an operation of the law of compensation. The time was when a loss of 10 or 15 points in the percentage rate of ingot output, such as this and nearby districts have sustained in the past 30 days, would have been attended by an increased pressure for orders sufficient to bring about lower prices. But there is none of this tendency, and its absence may be ascribed to a feeling that as there was not the usual letdown in business last summer, one is due.

Ingot output for the entire district is still placed at between 70 and 75 per cent of capacity. While the expectation is that December will not do as well in production as this month, it will take a heavier decline of output than has thus far occurred to wipe out the 10 per cent gain over last year that was rolled up in the first 10 months of the year.

Buyers of all finished steel products are cautious in the matter of orders and specifications, and little interest has developed in first quarter requirements, although in the past week makers of cold-finished steel bars, strips and bolts and nuts have opened their books for that period, and except on the cold-finished bars, for which slightly higher prices are sought, they are quoting prices that have been ruling for some time. With no advances proposed in sheets or tin plate, the market is shaping itself for a continuance of recent prices for the early months of next year. Nothing has yet been said about early 1927 prices of bars, shapes and plates, but it is likely the effort will be continued to keep bars and shapes at 2c., Pittsburgh, as a minimum. In a general way, such formal quarterly contracting as is done will probably move more slowly than last year, as there is not the incentive in the form of rising prices that there was a year ago.

Merchant producers of pig iron are holding to the advances they announced around the first of the month following the increase in coke costs incident to the wage advance of miners and oven workmen, but there still seems to be sufficient iron available at less than these quotations to prevent their full establishment. The slump in coal and coke prices that came with the apparent end of the British miners' strike has brought the market to levels that allow no profit on the present wage scales, and, while demand is still slow, the market is somewhat steadier than a week ago. There have been few cancellations of export coal contracts, and it looks as if there would be a good business in that direction at least until the new year. This, however, does not alter the fact that coal is being produced too heavily for all requirements, and with some mines already going down for want of business, there is increased talk of the possibility of a downward revision of wages as the supply of miners becomes larger through mine suspension.

Pig Iron.—Something of a deadlock has developed in this market. Consumers are no more convinced now than they have been in the past few weeks that the

advance in pig iron prices, based on the higher coke costs, is more than temporary, and accordingly they continue to refrain from buying. Merchant producers argue that the increase in coke costs is an actuality and that as pig iron prices were unprofitable before the advance in fuel costs, they should not be called upon to take losses. They are not pressing for sales either for prompt or first quarter shipment and are making a stand at the prices to which they believe they are entitled. The market, however, cannot be quoted any differently than it has been over the past few weeks, for while there are small sales at the full prices, there are just as many at the lower quotations. There is iron in the hands of middlemen that is available at less than the furnace quotations, and steel companies with surplus production are not asking, in all cases, as much as is quoted by the merchant producers. The Carnegie Steel Co. has put on a Carrie furnace since a week ago, and the new furnace of the Weirton Steel Co. was blown in last Saturday night and made its first iron on Monday.

We quote Valley furnace, the freight for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$18.50 to $19.00
Bessemer	20.00 to 20.50
Gray forge	18.50 to 19.50
No. 2 foundry	19.00 to 20.00
No. 3 foundry	18.50 to 19.50
Malleable	19.00 to 20.00
Low phosphorus, copper free	28.00

Ferroalloys.—Consumers are still hesitant about contracting for supplies of ferromanganese for the first half of 1927, and it looks as if such business might be deferred until near the close of the year. Domestic producers will deliver in the first quarter of next year any tonnage bought for delivery this year that remains unspecified. There may not be much such tonnage, as consumers have been taking shipments freely against contracts, but allowing the extra time for specifications permits buyers to hold off longer than they could if the unspecified tonnages were to be cancelled. Producers included a guarantee against a decline in prices in the quotation for the first half, as it was believed that buyers would not sign up on any other basis after the course of the market this year. It is said that British makers have costs of approximately $65 a ton and, with the duty of $33.60, cannot sell profitably at less than $100, while domestic costs are said to be $95. There has been no announcement of first quarter and first half prices on spiegeleisen. The market for tonnages of 19 to 21 per cent material for delivery during the remainder of the year is $40, furnace. A fair amount of 1927 business in 50 per cent ferrosilicon is reported closed.

Semi-Finished Steel.—Specifications for semi-finished steel still mirror the narrowing activities of finishing mills, and are further restricted by the desire of a good many non-integrated steel manufacturers to keep down year-end inventories. No interest is yet evident in tonnages for the first quarter of 1927, but it is a little early for such business, and, besides, quarterly contracting has fallen into disuse in the past year in favor of special agreements covering the requirements of the buyer and subject to monthly specifications. Indications are that the last month of the year will be a slow one in billets and slabs, because the principal outlet is to strip makers, who have been getting little business from the automotive industry. The principal business from automotive plants in December will be in releases against old orders already covered by unfinished steel purchases. Mills are still quoting sheet bars and small billets at $36, Pittsburgh or Youngstown, and large billets and slabs at $35, but there is some doubt that these prices apply on all of the business. Wire rod and skelp specifications are lighter than they were recently. Prices are given on page 1513.

Steel and Iron Bars.—The steel bar market is slow, with no change in prices except that 2c., base Pittsburgh, now rules on lots that earlier in the fall would have brought out quotations of 2.10c. Cold-finished steel bar makers are having poor business because of the low rate of automobile production and are ordering out hot-rolled bars strictly in accordance with their orders. That division of the industry, which annually takes between 600,000 and 700,000 tons of hot-rolled bars, is not operating at more than 50 per cent of capacity. Bolt, nut and rivet makers also are in rather quiet times and are ordering sparingly, while inventory considerations are effective in keeping down to a minimum the purchases of merchant and reinforcement bars. Iron bars are slow and barely steady. Prices are given on page 1511.

Structural Steel.—Incoming business in large structural shapes is not keeping pace with shipments against old orders, and mill operations are lighter. Fabricating companies in this district are figuring on a fair amount of business, but actual awards are light. The plain material market is firm at 2c., base Pittsburgh, on such tonnages as are coming out, but they do not include many of size.

Plates.—Mills in this district are still holding firmly to 1.90c., base Pittsburgh, for plates, whether the tonnage is large or small. The year's business record to date is regarded with some satisfaction, in view of the small contribution that has been made by railroad car building companies. Barges, tanks and large pipe have provided a good deal of tonnage this year.

Rails and Track Supplies.—The New York Central has yet to make awards against its recent Clayton Act inquiry for spikes, bolts, tie plates and angle bars. General business in track supplies is only moderately active, but is expected to improve as the movement of standard-section rails gets under way after the turn of the year and track laying becomes more active. Eastern railroads generally are following a policy of monthly specifications. Light-section rails and small spikes are less active because of the slump in coal prices, which carries a threat of lower mine operations. Prices are given on page 1511.

Tubular Goods.—Demand for pipe is gradually decreasing, as it usually does at this time of year, when jobbers are disposed to watch inventories closely, and the oil and gas industry does not generally carry on drilling as actively as at other periods of the year. The past week has brought reductions in Pennsylvania and Mid-Continent crude oil prices, because the supply

THE IRON AGE Composite Prices

Finished Steel

Nov. 23, 1926, 2.453c. Per Lb.

One week ago	2.453c.
One month ago	2.453c.
One year ago	2.439c.
10-year pre-war average	1.689c.

Based on steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 87 per cent of the United States output of finished steel.

	High		Low	
1926	2.453c.,	Jan. 5;	2.403c.,	May 18
1925	2.560c.,	Jan. 6;	2.396c.,	Aug. 18
1924	2.789c.,	Jan. 15;	2.460c.,	Oct. 14
1923	2.824c.,	April 24;	2.446c.,	Jan. 2

Pig Iron

Nov. 23, 1926, $20.13 Per Gross Ton

One week ago	$20.13
One month ago	19.71
One year ago	21.55
10-year pre-war average	15.72

Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

	High		Low	
1926	$21.54,	Jan. 5;	$19.46,	July 13
1925	22.50,	Jan. 13;	18.96,	July 7
1924	22.88,	Feb. 26;	19.21,	Nov. 3
1923	30.86,	March 20;	20.77,	Nov. 20

Mill Prices of Finished Iron and Steel Products

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mills	2.00c. to 2.10c.
F.o.b. Chicago	2.10c.
Del'd Philadelphia	2.32c.
Del'd New York	2.34c.
Del'd Cleveland	2.19c.
F.o.b. Cleveland, sizes up to 1-in. rounds	2.00c.
F.o.b. Birmingham	2.15c. to 2.25c.
C.i.f. Pacific ports	2.35c.
F.o.b. San Francisco mills	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills	2.00c. to 2.10c.

Rail Steel

F.o.b. mill	1.80c. to 1.90c.
F.o.b. Chicago	1.90c. to 2.00c.

Iron

Common iron, f.o.b. Chicago	2.00c.
Refined iron, f.o.b. P'gh mills	3.00c.
Common iron, del'd Philadelphia	2.22c.
Common iron, del'd New York	2.24c.

Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mill	1.90c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	2.09c.
Del'd Philadelphia	2.22c.
Del'd New York	2.24c.
C.i.f. Pacific ports	2.30c.

Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mill	2.00c. to 2.10c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.15c. to 2.25c.
Del'd Cleveland	2.19c.
Del'd Philadelphia	2.22c. to 2.32c.
Del'd New York	2.34c.
C.i.f. Pacific ports	2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, narrower than 6 in., P'gh	2.50c.
All gages, 6 in. and wider, P'gh	2.30c.
All gages, 6 in. and narrower, Chicago	2.60c.
All gages, wider than 6 in., Chicago	2.50c.
Cotton ties, f.o.b. Atlantic ports, per bundle of 45 lb	$1.22
Cotton ties, f.o.b. Gulf ports, per bundle of 45 lb.	1.20

Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills	2.30c. to 2.40c.
Bars, f.o.b. Chicago	2.40c.
Bars, Cleveland	2.45c.
Shafting, ground, f.o.b. mill	*2.55c. to 3.00c.
Strips, f.o.b. Pittsburgh mills	3.25c. to 3.50c.
Strips, f.o.b. Cleveland mills	3.15c. to 3.40c.
Strips, delivered Chicago	3.40c. to 3.70c.
Strips, f.o.b. Worcester mills	3.75c.

*According to size.

Wire Products

(To jobbers in car lots, f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails	$2.65
Galv'd nails, 1-in. and longer	4.65
Galv'd nails, shorter than 1-in.	4.90
Galvanized staples	3.35
Polished staples	3.10
Cement coated nails	2.65

	Base Per 100 Lb.
Bright plain wire, No. 9 gage	$2.50
Annealed fence wire	2.65
Spring wire	3.50
Galv'd wire, No. 9	3.10
Barbed wire, galv'd	3.35
Barbed wire, painted	3.10

Chicago district mill and delivered Chicago prices are $1 per ton above the foregoing. Birmingham mill prices $5 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant; Duluth, Minn., mill $2 a ton higher; Anderson, Ind., $1 higher.

Woven Wire Fence

	Base to Retailers Per Net Ton
F.o.b. Pittsburgh	$65.00
F.o.b. Cleveland	65.00
F.o.b. Anderson, Ind.	66.00
F.o.b. Chicago district mills	67.00
F.o.b. Duluth	68.00
F.o.b. Birmingham	68.00

Sheets

Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh	2.30c. to 2.40c.
Nos. 9 and 10, f.o.b. Ch'go dist. mill	2.50c.
Nos. 9 and 10, del'd Philadelphia	2.62c. to 2.72c.
Nos. 9 and 10, f.o.b. Birmingham	2.60c. to 2.70c.

Box Annealed, One Pass Cold Rolled

No. 24, f.o.b. Pittsburgh	3.00c. to 3.10c.
No. 24, f.o.b. Ch'go dist. mill	3.20c.
No. 24, del'd Philadelphia	3.32c. to 3.42c.
No. 24, f.o.b. Birmingham	3.30c. to 3.40c.

Metal Furniture Sheets

No. 24, f.o.b. Pittsburgh, A grade	4.25c.
No. 24, f.o.b. Pittsburgh, B grade	4.10c.

Galvanized

No. 24, f.o.b. Pittsburgh	3.85c. to 3.95c.
No. 24, f.o.b. Chicago dist. mill	4.05c.
No. 24, del'd Philadelphia	4.17c. to 4.32c.
No. 24, f.o.b. Birmingham	4.20c. to 4.30c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	3.15c. to 3.25c.
No. 28, f.o.b. Chicago dist. mill	3.25c. to 3.35c.

Automobile Body Sheets

No. 20, f.o.b. Pittsburgh	4.25c.

Long Ternes

No. 24, 8-lb. coating, f.o.b. mill	4.30c.

Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills	$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.	5.60

Terne Plate

(*F.o.b. Morgantown or Pittsburgh*)

(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.40
8-lb. coating I.C.	11.70
15-lb. coating I.C.	14.85
20-lb. coating I.C.	$16.20
25-lb. coating I.C.	17.90
30-lb. coating I.C.	19.45
40-lb. coating I.C.	21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers		Base Per 100 Lb.
2100*	(1½% Nickel, 0.10% to 0.20% Carbon)	$3.20 to $3.25
2300	(3½% Nickel)	4.35 to 4.50
2500	(5% Nickel)	5.50 to 5.65
3100	(Nickel Chromium)	3.40 to 3.50
3200	(Nickel Chromium)	5.00 to 5.25
3300	(Nickel Chromium)	7.00 to 7.25
3400	(Nickel Chromium)	6.25 to 6.50
5100	(Chromium Steel)	3.40 to 3.50
5200*	(Chromium Steel)	7.00 to 7.50
6100	(Chrom. Vanadium bars)	4.30
6100	(Chrom. Vanad. spring steel)	2.80
9250	(Silicon Manganese spring steel)	3.20 to 3.25
Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.)		4.10 to 4.20
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)		4.30
Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.)		4.25 to 4.35
Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)		3.40 to 3.50
Chromium Molybdenum spring steel (1—1.25 Chrom., 0.30—0.50 Molybdenum)		4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Rails

	Per Gross Ton
Standard, f.o.b. mill	$43.00
Light (from billets), f.o.b. mill	36.00
Light (from rail steel), f.o.b. mill	34.00
Light (from billets), f.o.b. Ch'go mill	$34.00 to $35.00

Track Equipment

(F.o.b. Mill)

	Base Per 100 Lb.
Spikes, ⅜ in. and larger	$2.80 to $3.00
Spikes, ½ in. and smaller	2.90 to 3.25
Spikes, boat and barge	3.25
Track bolts, all sizes	3.90 to 4.50
Tie plates, steel	2.25 to 2.35
Angle bars	2.75

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	⅛ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1¼	30	13
1 to 3	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	⅛ to ⅜	+19	+84
¼ to ⅜	47	30½	½	21	7
½	53	42½	¾	28	13
¾	58	47½	1 to 1¼	30	14
1 to 1¼	60	49½			
2 to 3	61	50½			

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	13
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2 to 2¼ in.	37	1½ in.	+13
2½ to 3¼ in.	37	1¾ to 1¼ in.	+ 9
3 in.	40	2 to 2½ in.	— 2
3½ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	44	3¼ to 4½ in.	— 9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 tens to 2 tens and 1 five on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	48
1¼ to 1½ in.	52	3½ to 3½ in.	47
1¾ in.	56	4 in.	50
2 to 2¼ in.	51	4½, 5 and 6 in.	48
2½ to 2¾ in.	50		

Hot Rolled

2 and 2¼ in.	34	2½ and 3½ in.	50
2½ and 2¾ in.	42	4 in.	50
3 in.	48	4½, 5 and 6 in.	48

Less carloads, 4 points less. Add $5 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

	Per Cent Off List
Carbon, 0.10% to 0.20%, base	55
Carbon, 0.30% to 0.40%, base	50

Plus differentials for lengths over 12 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.

was beginning to gain on demand. In oil and gas pipe lines, interest now centers on a project to connect the Amarillo, Tex., field with Brownsville, Tex., the details of which are being worked out by the Hope Engineering & Supply Co., Mount Vernon, Ohio. Boiler tubes are in fairly good demand, but mechanical tubing awaits larger production of automobiles. Discounts are given on page 1511.

Sheets.—New business is light, but consumers are drawing fairly freely against old orders, as is indicated in mill operations averaging 80 per cent of capacity at a time when the automobile body makers are taking little steel. Prices show no change. Most makers are quoting either for early or first quarter shipment, the prices named in September following the change in the base gage and the gage differentials, but those prices have never been fully established and still are subject to concessions of $2 a ton. The market has had no real test since September, because coverage at lower prices at that time was so liberal. Prices are given on page 1511.

Tin Plate.—Reports that the American and Continental can companies had closed for their first half of 1927 requirements of tin plate are denied by the American Sheet & Tin Plate Co., which has not yet received either formal or verbal orders from those companies. There is not much question that these companies, as in other years, will provide business that will average more than 1,000,000 boxes monthly over the first six months of next year, but in the total will be included a considerable tonnage now being rolled and shipped for the American Can Co. to supply the needs of the Hawaiian pineapple crop. In a general way, tin plate makers have a good idea of the packers' can requirements in 1927, either in signed or verbal contracts, and are looking forward to another good year.

Cold-Finished Steel Bars and Shafting.—Makers generally have opened books for first quarter business at 2.40c., base Pittsburgh. This represents an advance over what some consumers lately have been paying and also over the average mill price over the past 60 days, as usually in a two-price market the bulk of the sales will be at the lower figure. Producers justify the advance on the ground that since July 1 prices have not yielded more than a new dollar for an old one, and in the past 60 days there has been a loss on account of the low rate of production. It is also said that the mid-year advance in hot-rolled bars has raised the average cost of the raw material. Current business suffers because of the restricted demand from automobile parts makers.

Hot-Rolled Flats.—Present prices of 2.30c., base Pittsburgh, for wide and 2.50c., base, for narrow material have been continued into the first quarter of 1927 with the opening of books for that period. Business is still slack because of the light demand from the automotive industry.

Cold-Rolled Strips.—Some makers have formally opened their books for first quarter business, naming recent prices of 3.50c., base Pittsburgh, on small lots, and from that down to 3.10c., base, on the large tonnages. Others are willing to enter business for that period, but report no great desire as yet on the part of customers for coverage. Current business is light because of the very meager orders and releases against suspended shipments from the automobile builders.

Bolts, Nuts and Rivets.—Makers of bolts and nuts are continuing present discounts on first quarter contracts, books for which are being opened this week. There has been no announcement as to first quarter rivet prices, but there is possibility of an advance, because present prices, particularly on large lots, are unsatisfactory from a cost standpoint to those who make nothing except rivets. Business is not very active in these lines. Prices and discounts are given on page 1513.

Coke and Coal.—The decline in prices recorded a week ago seems to have discounted the change in the situation brought about by the collapse of the British strike, and prices are substantially where they were a week ago. One cancellation of 50,000 tons of export coal is reported, but in this case $1 a ton for cancellation went to the shipper, while the buyer saved a like amount by being able to replace the tonnage at $2 a ton under the price of the original contract. Export business has not stopped but is limited by the facilities for handling it at the Atlantic seaboard piers. Moreover, export shipments are still subject to permits by the railroads. It is in the low grade coals that export business has dropped, because the resumption in British mines has been in those producing the lower grades. A continued good movement of gas coal to foreign markets is looked for, at least until over the turn of the year. A tapering off of the Lake business, calling for prepared sizes, has shortened the supply of slack coal, and that grade is slightly stronger than it was a week ago. Spot foundry coke is easier, the ruling prices being $5 to $5.50 per net ton at mines, with special brands held at $6 and higher. Spot furnace coke holds at $4.25 to $4.75, with both supplies and wants small.

Old Material.—Price swings in scrap have been within much smaller limits this year than in other recent years, and the tone of the market changes with much more frequency than was the case when consumers bought further ahead. With the extension of hand-to-mouth buying to the scrap market, the possibilities of successful speculative activities have been reduced. Steel mills in this territory want a definite kind of heavy melting steel and will take nothing else. Because of the strict inspection, dealers have to provide what is wanted and have to pay almost as much for it as they can obtain. A week ago, with the disappearance of $18 on heavy melting steel, the market looked weak, but this week it is the reverse. At one point where the requirements are not hard to meet $17 has been paid, and there is so little No. 1 steel scrap offered that dealers are not anxious for orders at $17.50, although there is no point in the district where that price can be obtained today. The market is stronger on compressed and bundled sheets. Compressed sheets were recently sold by a producer in the district at $15.25, to which must be added $1.39 a ton, the freight to the nearest consuming mill. The market is weaker on machine shop turnings, and sales of blast furnace material are no longer possible at more than $13.

Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Tank plates	3.00c.
Structural shapes	3.00c.
Soft steel bars and small shapes	2.90c.
Reinforcing steel bars	2.90c.
Black sheets (No. 24 gage), 25 or more bundles	3.95c.
Galvanized sheets (No. 24 gage), 25 or more bundles	4.70c.
Blue annealed sheets (No. 10 gage), 25 or more sheets	3.40c.
Cold-finished shafting and screw stock—	
Rounds and hexagons	3.60c.
Squares and flats	4.10c.
Bands	3.60c.
Spikes, large	3.30c.
Small	3.80c. to 5.25c.
Boat	3.80c.
Bolts, track	4.90c.
Wire, black soft annealed, base per 100 lb.	$3.00
Wire, galvanized soft, base per 100 lb.	3.00
Common wire nails, per keg	3.00
Cement coated nails, per keg	3.05

We quote for delivery to consumers' yards in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton	
Heavy melting steel	$17.00 to	$17.50
Scrap rails	16.25 to	16.75
No. 1 cast, cupola size	16.00 to	16.50
Compressed sheet steel	16.00 to	16.50
Bundled sheets, sides and ends	15.00 to	15.50
Railroad knuckles and couplers	18.50 to	19.00
Railroad coil and leaf springs	18.50 to	19.00
Low phosphorus blooms and billet ends	21.00 to	21.50
Low phosphorus mill plates	20.50 to	21.00
Low phosphorus, light grade	17.50 to	18.00
Low phosphorus punchings	18.50 to	19.00
Steel car axles	21.50 to	22.00
Cast iron wheels	16.00 to	16.50
Rolled steel wheels	18.50 to	19.00
Machine shop turnings	11.75 to	12.00
Short shoveling steel turnings	13.50 to	14.00
Sheet bar crops	17.50 to	18.00
Heavy steel axle turnings	15.50 to	16.00
Short mixed borings and turnings	12.75 to	13.00
Heavy breakable cast	15.00 to	15.50
Cast iron borings	12.75 to	13.00
No. 1 railroad wrought	13.00 to	13.50
No. 2 railroad wrought	17.00 to	17.50
Railroad or automobile malleable scrap	17.00 to	17.50

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Mill Prices of Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rerolling, 4-in. and over	$35.00
Rerolling, under 4-in. to and including 1¾-in.	36.00
Forging, ordinary	40.00
Forging, guaranteed	45.00

Sheet Bars

	Per Gross Ton
Open-hearth or Bessemer	$36.00

Slabs

	Per Gross Ton
8 in. x 2 in. and larger	$35.00
Smaller than 8 in. x 2 in.	36.00

Skelp

	Per Lb.
Grooved	1.90c.
Sheared	1.90c.
Universal	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base	$45.00
Screw stock	$5.00 per ton over base
Carbon 0.20% to 0.40%	2.00 per ton over base
Carbon 0.41% to 0.55%	5.00 per ton over base
Carbon 0.56% to 0.75%	7.50 per ton over base
Carbon over 0.75%	10.00 per ton over base
Acid	15.00 per ton over base

*Chicago mill base is $46. Cleveland mill base, $45.

Prices of Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range Bessemer, 51.50% iron	$4.55
Old range non-Bessemer, 51.50% iron	4.40
Mesabi Bessemer, 51.50% iron	4.40
Mesabi non-Bessemer, 51.50% iron	4.25
High phosphorus, 51.50% iron	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66% iron	9.50c.
Manganese ore, washed, 51% manganese, from the Caucasus	40c. to 42c.
Manganese ore, high grade, nominal	35c. to 44c.
Tungsten ore, high grade, per unit, in 60% concentrates	$11.75 to $12.50

	Per Ton
Chrome ore, Indian basic, 48% Cr_2O_3, crude, c.i.f. Atlantic seaboard	$22.50

	Per Lb.
Molybdenum ore, 85% concentrates of MoS_2, delivered	50c. to 55c.

Coke

	Per Net Ton
Furnace, f.o.b. Connellsville prompt	$4.25 to $4.75
Foundry, f.o.b. Connellsville prompt	5.00 to 6.00
Foundry, by-product, Ch'go ovens	9.75
Foundry, by-product, New England, del'd	13.00
Foundry, by-product, Newark or Jersey City, delivered	10.59 to 11.77
Foundry, Birmingham	5.50 to 6.00
Foundry, by-product, St. Louis or Granite City	10.00

Coal

	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines	$1.75 to $2.35
Mine run coking coal, f.o.b. W. Pa. mines	2.00 to 2.50
Mine run gas coal, f.o.b. Pa. mines	2.25 to 2.75
Steam slack, f.o.b. W. Pa. mines	1.75 to 1.90
Gas slack, f.o.b. W. Pa. mines	2.00 to 2.10

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd	$100.00
Foreign, 80%, Atlantic or Gulf port, duty paid	$100.00

Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%	$40.00

Electric Ferrosilicon

	Per Gross Ton Delivered
50%	$85.00 to $87.50
75%	145.00 to 150.00

	Per Gross Ton Furnace		Per Gross Ton Furnace
10%	$35.00	12%	$39.00
11%	37.00	14 to 16%	$45 to 46.00

Bessemer Ferrosilicon

F.o.b. Jackson County, Ohio Furnace

Per Gross Ton		Per Gross Ton
10% $34.00	12%	$38.00
11% 36.00		

Silvery Iron

F.o.b. Jackson County, Ohio Furnace

Per Gross Ton		Per Gross Ton
6% $26.50	10%	$32.00
7% 27.50	11%	34.00
8% 28.50	12%	36.00
9% 30.00		

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd	$1.05 to $1.10
Ferrochromium, 4 to 6% carbon and up, 65 to 70% Cr., per lb. contained Cr. delivered, in carloads	11.50c.
Ferrovanadium, per lb. contained vanadium, f.o.b. furnace	$3.25 to $4.00
Ferrocarbontitanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads	$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton	$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per net ton	$122.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines	$18.00
No. 2 lump, Illinois and Kentucky mines	$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid,	$17.00 to $17.50
Domestic, No. 1 ground bulk, 96 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines	$32.50

Fire Clay

	Per 1000 f.o.b. Works	
	High Duty	Moderate Duty
Pennsylvania	$40.00 to $43.00	$35.00 to $40.00
Maryland	43.00 to 46.00	38.00 to 40.00
New Jersey	55.00 to 75.00	
Ohio	40.00 to 43.00	38.00 to 40.00
Kentucky	40.00 to 43.00	38.00 to 40.00
Illinois	40.00 to 43.00	35.00 to 38.00
Missouri	40.00 to 43.00	35.00 to 38.00
Ground fire clay, per ton	6.50 to 7.50	

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania	$40.00 to $43.00
Chicago	52.00
Birmingham	50.00
Silica clay, per ton	$8.00 to 9.00

Magnesite Brick

	Per Net Ton
Standard sizes, f.o.b. Baltimore and Chester, Pa.	$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.	60.00

Chrome Brick

	Per Net Ton
Standard size	$45.00

Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

(Less-than-Carload Lots)

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

	Per Cent Off List
Machine bolts, small, rolled threads	60 and 10
Machine bolts, all sizes, cut threads	50, 10 and 10
Carriage bolts, smaller and shorter, rolled threads	50, 10 and 10
Carriage bolts, cut threads, all sizes	50 and 10
Eagle carriage bolts	65 and 10
Lag bolts	60, 10 and 10
Plow bolts, Nos. 3 and 7 heads	50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, ⅜ x 4 in.,	45, 10 and 5
Larger and longer sizes	45, 10 and 5
Bolt ends with hot-pressed nuts	50, 10 and 10
Bolt ends with cold-pressed nuts	45, 10 and 5
Hot-pressed nuts, blank and tapped, square,	4.00c. per lb. off list
Hot-pressed nuts, blank or tapped, hexagons,	4.40c. per lb. off list
C.p.c. and t. square or hex. nuts, blank or tapped	4.10c. per lb. off list
Washers*	6.75c. to 6.50c. per lb. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent more than above for car lots. On hot-pressed and cold-punched nuts the discount is 25c. more per 100 lb. than quoted above for car lots.

Bolts and Nuts

(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Semi-finished hexagons nuts:	
⅞ in. and smaller, U. S. S.	80, 10 and 5
1 in. and larger, U. S. S.	75, 10 and 5
Small sizes, S. A. E.	60, 10, 10 and 5
S. A. E., ⅜ in. and larger	75, 10, 10 and 5
Stove bolts in packages	60, 10 and 5
Stove bolts in bulk	80, 10, 5 and 2½
Tire bolts	40 and 5

Semi-Finished Castellated and Slotted Nuts

(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

(To jobbers and consumers in large quantities)

	Per 100 Net S.A.E.	Per 100 Net U.S.S.		Per 100 Net S.A.E.	Per 100 Net U.S.S.
½-in.	$0.44	$0.44	⅞-in.	$2.25	$2.40
⅝-in.	0.515	0.515	1-in.	3.60	3.60
¾-in.	0.62	0.66	1-in.	5.65	5.20
⅞-in.	0.79	0.90	1⅛-in.	9.90	9.50
1-in.	1.01	1.05	1¼-in.	12.60	13.10
1⅛-in.	1.38	1.42	1⅜-in.	18.25	18.25
1¼-in.	1.70	1.73	1½-in.	21.00	21.00

Larger sizes.—Prices on application.

Large Rivets

	Base Per 100 Lb.
F.o.b. Pittsburgh	$2.45 to $2.60
F.o.b. Cleveland	2.70
F.o.b. Chicago	2.60 to 2.75

Small Rivets

	Per Cent Off List
F.o.b. Pittsburgh	70, 10 and 5 to 70 and 10
F.o.b. Cleveland	70, 10 and 5 to 70 and 10
F.o.b. Chicago	70, 10 and 5 to 70 and 10

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Milled cap screws	60 and 10
Milled standard set screws, case hardened,	60 and 5
Milled headless set screws, cut thread	50
Upset hex. head cap screws, U. S. S. thread,	50, 10 and 10
Upset hex. cap screws, S.A.E. thread,	50, 10 and 10
Upset set screws	50, 10 and 5
Milled studs	70 and 5

Chicago

Rail Specifications Sustain Steel Output as General Demand Declines

CHICAGO, Nov. 23.—The Steel Corporation has blown out another stack at South Chicago, which is a further indication of the swing of production from the lighter finished products to rails. The rate of ingot production has not declined. Increased rail rollings at Gary and a more generous use of scrap at South Chicago are tending to hold output at the average of the past two months. The leading producer now has 15 furnaces active out of 27, and the total count of steel works stacks in blast in this district stands at 24 out of 36.

Fabricators of structural material have heavier bookings than earlier in the fall, and shops are going into the winter months with more work ahead than at this time a year ago. Building permits issued in Chicago during October exceeded by 70 per cent the total for the corresponding month of 1925. Office and apartment buildings show the greatest gains.

Reports of the proposed retirement of old railroad equipment add strength to the impression in the trade that car buying will become more liberal. The Chicago & North Western is asking for prices on 250 ore cars, and the Rock Island will take bids on 73 passenger and baggage cars.

The T. J. Forschner Construction Co. has awarded to an undisclosed dealer, 3750 tons of reinforcing bars for a sewage treating plant at Stickney, Ill. Farm implement manufacturers are looking to the future with greater confidence and are preparing fair-sized schedules for January. November specifications for hot-rolled strip from the automobile trade are running fully 20 per cent heavier than in October. For all finished steel products both specifications and new business are about equal to shipments, which are close to the October rate. Rail purchases and specifications are largely responsible for sustained production.

Pig Iron.—With approximately 70 per cent of first quarter iron now contracted for, the market is striking a slower gait. A few users have made commitments for the first half, but producers are watching the coal situation closely and are not pressing for business that far in advance. Shipments are a trifle lower because of reduced operations by malleable foundries. A user in central Iowa wants 3000 tons of foundry iron for delivery during the first half, and a Milwaukee melter is in the market for 1000 tons of foundry and malleable iron. A few carload lots of charcoal iron have been taken at the ruling delivered price of $27.04. Spot buying of silvery is light, and buyers are offering resistance to the $1 advance for delivery after the first of the year.

Quotations on Northern foundry, high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards:

Northern No. 2 foundry, sil. 1.75 to 2.25	$21.00
Northern No. 1 foundry, sil. 2.25 to 2.75	21.50
Malleable, not over 2.25 sil.	21.00
High phosphorus	21.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	27.04
Southern No. 2 (all rail)	26.01
Southern No. 2 (barge and rail)	24.18
Low phos., sil. 1 to 2 per cent, copper free	$31.50 to 32.50
Silvery, sil. 8 per cent	33.29
Bessemer ferrosilicon, 14 to 15 per cent	46.79

Ferroalloys.—Ferrosilicon contracting for 1927 has been completed at a delivered price of $85 for 50 per cent. Several first half contracts for ferromanganese have been closed at $100, seaboard, or $107.56, delivered. Spiegeleisen is quiet, and users are showing no interest in first quarter requirements.

We quote 80 per cent ferromanganese, $107.56, delivered Chicago; 50 per cent ferrosilicon, $85, delivered; spiegeleisen, 18 to 22 per cent, $47.56, delivered Chicago.

Plates.—The trade regards the recent inquiry for 2500 freight cars by the Rock Island as a forerunner of others, since that road will soon retire more than 6000 cars. The Missouri Pacific is still withholding the formal inquiry for 3500 cars. The Chicago & North Western continues to develop its equipment program and is now asking for prices on 250 70-ton ore cars. Steel specifications from railroad equipment makers are light, although slightly better than in the early fall. A new oil-producing district in southwestern Oklahoma is now placing a large share of the storage tanks for which Western mills are supplying plates. Tank lettings this week total 10,000 tons, of which 6000 tons was placed in the East and 4000 tons, in the Chicago district. Oil storage projects are equal in tonnage to the total at this time a year ago. Business from this source has been more uniformly spread out this year than it was in 1925. Fresh inquiry is light, and the tankage on which prices are now being asked totals about 15,000 tons.

The mill quotation on plates is 2.10c. per lb., base, Chicago.

Sheets.—Spot buying is light, and notwithstanding the fact that books for the first quarter were opened last week, there has been no rush to place advance orders. Specifications are running heavier than shipments, and deliveries are extending as mills continue to operate at close to capacity. The demand from the roofing trade shows no slowing down, and makers of stove pipe and troughs are busy.

Chicago delivered prices from mill are 3.25c. for No. 24 black; 2.55c. for No. 10 blue annealed; 4.10c. for No. 24 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Structural Material.—The American Bridge Co., with a bid of $298,000, delivered at building site, is low on 4500 tons of structural steel required for the Central Court and Police Building, Chicago. This figure is equivalent to $66.22 per ton. A Milwaukee fabricator has taken 4600 tons for the Schroeder Hotel in that city. The trade looks forward to the placing this week of 2200 tons for a power house for the Standard Oil Co. at Whiting, Ind. Of late, awards have been in good volume, and shops are now booked for five to eight weeks. While these obligations are heavier than earlier in the fall, there is nevertheless a rush to take tonnage in anticipation of the usually dull winter months and this is having the effect of lowering bids. Specifications for plain material are improving and now are a trifle heavier than the average for the first 10 months of the year.

The mill quotation on plain material is 2.10c. per lb. base, Chicago.

Bars.—Reinforcing bar benders are taking smaller tonnages, but specifications from automobile parts makers and builders of road machinery are heavier. On the whole, shipments of soft steel bars are lighter than during September or October. New buying is light, but inquiry is becoming more active and one maker has opened books for first quarter business. The price of soft steel bars is steady at 2.10c., Chicago, in this immediate section. Competition in outlying districts, however, is being felt more keenly, and prices are noticeably weaker in the Southwest. Orders for bar iron are light, and mills are making prompt deliveries. The plant of the Republic Rolling Mill Corporation is down for repairs and will not resume operations for another week. Rail steel bars are weaker, and quotations now range from 1.90c. to 2c., Chicago. Sales are in small volume except for reinforcing bar purposes. Orders for fence posts for future delivery are fairly numerous and total more than a year ago at this time. Specifications are light from bed makers, who find the jobbing trade inactive during the late fall and early winter months. Chicago Heights mills are operating double turn.

Mill prices per lb. are: Mild steel bars, 2.10c., base, Chicago; common bar iron, 2c. base, Chicago; rail steel bars, 1.90c. to 2c., base, Chicago.

Rail and Track Supplies.—A Central, an Eastern and a Western railroad, all with terminals at Chicago, have placed a total of 25,000 tons of standard-section rails with Chicago mills. A fresh inquiry for 10,000 tons of rails for a Western railroad is now in the market. Miscellaneous contracts for track accessories total

9000 tons, and new inquiry calls for 18,000 tons. The New York Central has not yet placed the 30,000 tons of tie plates, bolts and spikes on which it recently asked prices. Specifications for rails for fall delivery are in good volume. The rail mill of the leading independent is operating at full capacity, and that of the foremost producer is being speeded up each week.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, $36 to $38 per gross ton, f.o.b. maker's mill.

Standard railroad spikes, 2.90c. per lb. mill; track bolts with square nuts, 3.90c. mill; steel tie plates, 2.35c. mill; angle bars, 2.75c. mill.

Cast Iron Pipe.—Prices of pipe lack strength. Bids opened by Chicago last Saturday on a small tonnage of 3-in. and 4-in. pipe included two low quotations that were equivalent to $39, Birmingham, for 6-in. and larger pipe. Three-inch pipe carries a $10 extra and 4-in. a $4 extra over the price for 6-in. Orders are in smaller volume, and deliveries are improving. Contracts now being placed are largely for work that must be completed before extremely cold weather sets in. Waukegan, Ill., is in the market for 200 tons of 6 to 10-in. pipe. The purchase of 300 tons by Centerville, Ind., has been indefinitely postponed. Royal Oak, Mich., has placed 100 tons of 6-in. Class B pipe with the Detroit Lead Pipe Co. A jobbing house at Mansfield, Ohio, is reported to have awarded 350 tons of 12-in. pipe to the Central Foundry Co.

We quote per net ton, delivered, Chicago, as follows: Water pipe, 4-in., $51.20 to $52.20; 6-in. and over, $47.20 to $48.20; Class A and gas pipe, $4 extra.

Reinforcing Bars.—It is reported that the 3750 tons of bars required for the Stickney, Ill., sewage plant has been placed, but that a formal contract has not been signed. In general, the market is quiet. Fresh inquiry is exceedingly light, and pending projects are slow in closing. Although there is still some interest in promotional projects, such as large apartment buildings and hotels, that class of business has tapered off sharply. M. I. Michuda Brothers, Chicago, are low bidders on the contract for the Lucy Flower Public School, Chicago. This project calls for 580 tons. As a general rule, prices are growing weaker as dealers become more anxious to get their full share of the late fall business. New lettings and fresh inquiries are shown on page 1526.

Wire Products.—Wire mill operations are tending downward. The average now is not over 55 per cent of capacity, and this will be cut to 45 per cent during the current week. Specifications from manufacturers are holding at the rate of the past few weeks, but the jobbing trade is slower. Business conditions have not improved in the South. The last week or 10 days has seen a noticeable drop in the demands on jobbers in the West and particularly the Southwest. On the other hand, consumption of wire products in Iowa and most of the Missouri River Valley is well maintained. Prices, which are shown on page 1511, are unchanged but lack the firmness of a week ago.

Hot-Rolled Strip.—Specifications are heavier. Mills say that schedules of the automotive trade for December show a fair increase over November and that the January schedules, as now planned, will call for large tonnages of strip. The slowness of the market in October and so far in November has resulted in keen competition, and present quotations lack strength, this being particularly noticeable in the narrow widths.

Cold-Rolled Strip.—Contracts for cold-rolled strip are being taken quietly within the range of 3.10c. to 3.40c., Cleveland. The corresponding Chicago delivered prices are 3.40c. to 3.70c. The higher price is holding only on lots of 18 tons or less; the 3.10c. quotation has been used to take large users out of the market.

Bolts, Nuts and Rivets.—Specifications from manufacturers of farm implements are larger. With the exception of the railroads, orders from the general trade are holding up well and the result is a net gain in specifications for the week now closing, as compared with the early part of November.

Coke.—Dealers have not opened books for 1927 business because of uncertainty as to coal costs. Spot sales are fairly numerous at 50c. above the 1926 contract prices, which are $9.75, local ovens, and $10.25, delivered in the Chicago switching district. November shipments are running about equal to those of October.

Old Material.—A Chicago district mill has purchased 5000 tons of heavy melting steel at $13.50 per gross ton, delivered. Trading among dealers is at $13. Inspection at the mills is rigid, making it necessary for dealers to ship only well graded railroad scrap to that trade. On the whole, this market is dull, except for a little more activity in borings, which have advanced to a maximum of $10. Users are offering $9.50 for this grade, but here and there have been forced to pay the dealers' asking price of $10. The Crane Co. received $11 per gross ton, delivered, for 1000 tons of cast iron borings. A small tonnage of steel angle bars has been sold to a user at $15.50 per gross ton, delivered, and melters are offering $16.50 for small lots of railroad malleable. Distress tonnage is becoming more of a factor as the railroads make an effort to get scrap out of the way before cold weather interferes with loading. Stocks outside of Chicago are said to be large. The bulk of this was accumulated in a speculative move and at higher prices than prevail today. Outside yard dealers are trying to hold on for a higher market, but sellers in Chicago point to this as one of the weak points in the present situation. It is feared that financial pressure will result in a general unloading of this material, thereby bearing down the market. In Chicago stocks are not heavy.

We quote delivered in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items, except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

	Per Gross Ton	
Heavy melting steel	$12.00 to	$13.50
Frogs, switches and guards, cut apart, and miscellaneous rails	14.50 to	15.00
Shoveling steel	12.00 to	13.50
Hydraulic compressed sheets	11.50 to	12.00
Drop forge flashings	9.50 to	10.00
Forged cast and rolled steel car-wheels	16.50 to	17.00
Railroad tires, charging box size	17.50 to	18.00
Railroad leaf springs, cut apart	16.50 to	17.00
Steel couplers and knuckles	15.50 to	16.00
Coil springs	17.25 to	17.75
Low phosphorus punchings	15.50 to	16.00
Axle turnings, foundry grade	13.00 to	13.50
Axle turnings, blast fur. grade	9.50 to	10.00
Relaying rails, 56 to 60 lb	25.50 to	26.50
Relaying rails, 65 lb. and heavier	26.00 to	31.00
Rerolling rails	16.50 to	17.00
Steel rails, less than 3 ft	16.25 to	16.75
Iron rails	13.50 to	14.00
Cast iron borings	9.50 to	10.00
Short shoveling turnings	9.50 to	10.00
Machine shop turnings	6.50 to	7.00
Railroad malleable	16.50 to	17.00
Agricultural malleable	15.00 to	15.50
Angle bars, steel	15.00 to	15.50
Cast iron carwheels	14.50 to	15.00
Per Net Ton		
No. 1 machinery cast	14.00 to	14.50
No. 1 railroad cast	13.50 to	14.00
No. 1 agricultural cast	13.50 to	14.00
Stove plate	14.00 to	14.50
Grate bars	13.50 to	14.00
Brake shoes	12.00 to	12.50
Iron angle and splice bars	14.00 to	14.50
Iron arch bars and transoms	18.75 to	19.25
Iron car axles	22.00 to	22.50
Steel car axles	17.00 to	17.50
No. 1 railroad wrought	12.50 to	13.00
No. 2 railroad wrought	11.50 to	12.00
No. 1 busheling	10.25 to	10.75
No. 2 busheling	6.25 to	6.75
Locomotive tires, smooth	14.00 to	14.50
Pipes and flues	9.00 to	9.50

Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes	3.10c.
Mild steel bars	3.00c.
Reinforcing bars, billet steel	2.25c. to 2.60c.
Cold-finished steel bars and shafting—	
Rounds and hexagons	3.60c.
Flats and squares	4.10c.
Hoops	4.15c.
Bands	3.65c.
No. 24 black sheets	3.95c.
No. 10 blue annealed sheets	3.50c.
No. 24 galvanized sheets	4.80c.
Standard railroad spikes	3.55c.
Track bolts	4.55c.
Structural rivets	3.50c.
Boiler rivets	3.70c.
	Per Cent Off List
Machine bolts	50 and 5
Carriage bolts	47½
Coach or lag screws	55 and 5
Hot-pressed nuts, square, tapped or blank	3.25c. off per lb.
Hot-pressed nuts, hexagons, tapped or blank	3.75c. off per lb.
No. 9 black annealed wire, per 100 lb	$3.20
Common wire nails, base per keg	3.05
Cement coated nails, base, per keg	3.05

New York

Pig Iron Buying Recedes—Demand for Pipe and Tin Plate Remains Active

NEW YORK, Nov. 23.—Pig iron demand has fallen off sharply, and sales by local brokers during the week totaled only 6000 tons. Most current orders and inquiries are small and call for first quarter delivery. The fuel scare furnished the incentive for the recent buying movement, and with that factor largely eliminated from consideration, melters see no reason for further protection of their pig iron requirements. Many of them, in fact, have already contracted for a large proportion of their needs in the first quarter. Contrary to reports a week ago, the British coal strike has not been settled, but it shows signs of petering out, as every day more miners are returning to work. While there will continue to be a good foreign market for American fuel for some time, the demand will no longer be of such a pressing character, it is thought, as to cause another upswing of fuel prices. Buffalo producers of pig iron continue to quote $19, base furnace, for foundry iron, and eastern Pennsylvania iron is again freely available at $22.50, base furnace. The General Electric Co. has not yet closed against its inquiries for Everett and Pittsfield, Mass., and it is also in the market for 400 tons of foundry iron for prompt delivery to its Lynn, Mass., plant. An inquiry from Abendroth Brothers, Port Chester, N. Y., for 1000 tons of No. 2 plain and No. 2X foundry for first quarter is still pending. The season of navigation for barge shipments of iron from Buffalo and other New York State producing points is virtually over. The Standish, N. Y., producer of low phosphorus is comfortably sold for first quarter. Foreign foundry iron is no longer a competitive factor in this market.

We quote per gross ton delivered in the New York district as follows, having added to furnace prices $1.39 to $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.54 from Virginia:

East. Pa. No. 2 fdy., sil. 1.75 to 2.25	$23.89 to $25.02
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	24.39 to 25.52
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	24.89 to 26.02
Buffalo fdy., sil. 1.75 to 2.25 (all rail)	23.91
No. 2 Virginia fdy., sil. 1.75 to 2.25	28.04 to 29.54

Ferroalloys.—Buying of ferromanganese is confined to carload and small lots for early consumption, but there is considerable activity in inquiries for contracts for next year's consumption. These amount to about 15,000 tons, most of it for delivery the first half. A large proportion has been virtually closed. The alloy for any seller is now quoted at a minimum of $100, seaboard or furnace. The spiegeleisen market is very quiet, with sales of carload and small lots the only feature. For the higher grade, $40, furnace, is the price, with the lower grade unobtainable. Contracts for 1927 requirements of 50 per cent ferrosilicon are being negotiated and some have been closed on a basis of $85 per ton, delivered, the same as this year's contract price. For standard ferrochromium the 1927 price is announced as 11.50c. per lb. of contained chromium, delivered, also the same as this year's contracts. Prices for the low-carbon ferrochromium range from 21c. to 32c. per lb. of contained chromium.

Reinforcing Bars.—Igoe Brothers will furnish 1000 tons of concrete reinforcing bars for a viaduct at Newark, N. J., and the Jones & Laughlin Steel Corporation will provide 1000 tons for an automobile service station in Manhattan. Other lettings during the past week have been small, and few sizable inquiries are coming out. No large tonnages are left to be placed in the near future, and business is quiet. Prices are unchanged.

Finished Steel.—There is a lessened demand for all finished steel products, with the possible exception of pipe and tin plate, which mills are producing at full or nearly full capacity. November business as a whole probably will show a falling off of 10 or 15 per cent from the October rate in this territory, although there is still a week in which sales offices may bring up the tonnage somewhat by getting in laggard specifications against November contract quotas. The demand for bars and structural shapes has slowed down considerably, while plates are holding very nearly to last month's sales. Both structural shape mills and fabricating shops are in need of tonnage; however, the amount of awards and inquiries in this district in the past week has shown a distinct gain over the preceding week. A downtown office building project, which will take about 7000 tons of steel, is the largest inquiry, but other work soon to come into the market is an office building north of Grand Central Terminal, calling for 30,000 to 40,000 tons of steel, and another office building at 2 Park Avenue which will require about 10,000 tons. Continued weakness prevails in sheet prices. A

Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes	3.34c.
Soft steel bars and small shapes	3.24c.
Iron bars	3.24c.
Iron bars, Swedish charcoal	7.00c. to 7.25c.
Cold-finished steel shafting and screw stock—	
Rounds and hexagons	4.00c.
Flats and squares	4.50c.
Cold-rolled strip, soft and quarter hard	6.25c.
Hoops	4.49c.
Bands	3.99c.
Blue annealed sheets (No. 10 gage)	3.89c.
Long terne sheets (No. 24 gage)	5.80c.
Standard tool steel	12.00c.
Wire, black annealed	4.50c.
Wire, galvanized annealed	5.15c.
Tire steel, 1½ x ½ in. and larger	3.30c.
Smooth finish, 1 to 2½ x ¼ in. and larger	3.65c.
Open-hearth spring steel, bases	4.50c. to 7.00c.

	Per Cent Off List
Machine bolts, cut thread	40 and 10
Carriage bolts, cut thread	30 and 10
Coach screws	40 and 10

Boiler Tubes—	Per 100 Ft.
Lap welded steel, 2-in.	$17.33
Seamless steel, 2-in.	20.24
Charcoal iron, 2-in.	25.00
Charcoal iron, 4-in.	67.00

Discounts on Welded Pipe

Standard Steel—	Black	Galv.
⅛-in. butt	46	29
¼-in. butt	51	37
⅜-in. butt	53	39
2½-6-in. lap	48	35
7 and 8-in. lap	44	17
11 and 12-in. lap	37	12
Wrought Iron—		
⅛-in. butt	4	+19
¼-in. butt	11	+ 9
1-1½-in. butt	14	+ 6
2-in. lap	5	+14
3-6-in. lap	11	+ 6
7-12-in. lap	3	+16

Tin Plate (14 x 20 *in.*)

	Prime	Seconds
Coke, 100 lb. base box	$6.45	$6.20
Charcoal, per box—	A	AAA
IC	$9.70	$12.10
IX	12.00	14.25
IXX	13.90	16.00

Terne Plate (14 x 20 *in.*)

IC—20-lb. coating	$10.00 to $11.00
IC—30-lb. coating	12.00 to 13.00
IC—40-lb. coating	13.75 to 14.25

Sheets, Box Annealed—Black, C. R. One Pass

	Per Lb.
Nos. 18 to 20	4.15c.
No. 22	4.30c.
No. 24	4.35c.
No. 26	4.45c.
No. 28*	4.60c.
No. 30	4.85c.

Sheets, Galvanized

	Per Lb.
No. 14	4.50c. to 4.75c.
No. 16	4.60c. to 4.85c.
No. 18	4.75c.
No. 20	4.90c.
No. 22	4.95c.
No. 24	5.10c.
No. 26	5.35c.
No. 28*	5.60c.
No. 30	6.00c.

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

few mills have fairly good backlogs, but others are anxious for business to fill out the year's rollings and are making concessions to get it. Sales of black sheets have been made at 2.95c., Pittsburgh, for immediate delivery, while galvanized sheets have been sold at a shade under 3.85c. There is also shading of 2.30c. on blue annealed sheets. For first quarter contracts practically all mills are asking 3.10c. for black, 3.95c. for galvanized and 2.40c. for blue annealed sheets. With respect to first quarter business in all lines, consumers seem content to await developments. No signs of price weakness have appeared in the major products aside from sheets, and as the consuming trade does not look for higher levels it is in no haste to make contracts. An oil company in the Louisiana district is inquiring for 84 miles of 18-in. pipe for a line at Monroe, La. Large inquiries for any product are the exception, current business being made up mostly of small orders, frequently repeated. Some of the steel companies which have canvassed their customers with a view to the outlook for first quarter business find no evidences of lack of confidence, and although the view obtains to some extent that the volume of steel buying will show a slight decline over the next few months, there are others who look for an upturn in the demand shortly after the first of the year.

We quote mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. per lb.; plates, 2.24c.; structural shapes, 2.34c.; bar iron, 2.24c.

Cast Iron Pipe.—Current demand is light, but a few inquiries for gas pipe for spring delivery are beginning to appear. One of these lists of requirements is from the United Gas Improvement Co., Philadelphia, and calls for about 2000 tons of 4-in. to 12-in. gas pipe. Although prices of gas and water pipe are unchanged, the present tendency of the market is toward the minimum price, quoted in recent weeks on desirable lots only. Among recent purchases of pipe is about 1000 tons bought by a Florida city and about 700 tons of 8-in. to 16-in. water pipe placed by the city of Newark, N. J., with the Warren Foundry & Pipe Co.

We quote pressure pipe per net ton, f.o.b. New York in carload lots, as follows: 6-in. and larger, $49.60 to $51.60; 4-in. and 5-in., $54.60 to $56.60; 3-in., $64.60 to $66.60; with $5 additional for Class A and gas pipe.

Warehouse Business.—Thus far November has been quite as active a month as October, but with Thanksgiving intervening, the final week of the month will probably bring out only a small tonnage of business.

Coke.—Prices of Connellsville foundry and furnace grades are off slightly for distress tonnages but are unchanged on contracts. Furnace is quoted at $4.25 and slightly less for distress lots, with deliveries in December bringing about $4.50 per ton, Connellsville. Standard foundry ranges from $5.25 for prompt shipment to $6 per ton for forward delivery, with one producer in the Connellsville district maintaining a price of $6.50 per ton. By-product coke is unchanged at $10.59 to $11.77 per ton, Newark or Jersey City, N. J.

Old Material.—Business is as quiet as at any time in the past few weeks. Brokers' buying prices are substantially unchanged, but the tendency is to offer less for eastern Pennsylvania delivery on practically all grades.

Buying prices per gross ton, New York, follow:

Heavy melting steel (yard)	$9.50 to $10.00
Heavy melting steel (railroad or equivalent)	11.75 to 12.85
Rails for rolling	12.75 to 13.25
Steel car axles	19.50 to 20.00
Iron car axles	24.00 to 24.50
No. 1 railroad wrought	14.00 to 15.00
Forge fire	9.50 to 10.00
No. 1 yard wrought, long	13.00 to 14.00
Cast borings (steel mill)	9.25 to 9.75
Cast borings (chemical)	13.00 to 13.50
Machine shop turnings	9.25 to 9.75
Mixed borings and turnings	9.25 to 9.75
Iron and steel pipe (1 in. diam., not under 2 ft. long)	9.75 to 10.25
Stove plate (steel mill)	9.25 to 9.75
Stove plate (foundry)	11.00 to 11.50
Locomotive grate bars	10.50 to 11.00
Malleable cast (railroad)	16.00 to 16.50
Cast iron carwheels	12.00 to 12.50
No. 1 heavy breakable cast	11.75 to 13.50

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$16.00 to $16.50
No. 1 heavy cast (columns, building materials, etc.), cupola size	14.50 to 15.00
No. 2 cast (radiators, cast boilers, etc.)	13.50 to 14.00

Cleveland

Steel Buying Continues to Decline as Inventory-Taking Approaches

CLEVELAND, Nov. 23.—The demand for finished steel has declined further. This is not attributed to any slowing down in operations by metal-working plants outside the automotive field, but to the desire of consumers to reduce their stocks in order to have them as low as possible at inventory time. A better demand is not looked for until some time next month, when buyers begin to place orders for early January shipment.

In the automotive industry release orders for sheets improved slightly in the past week. The present production of automobiles by all the Michigan builders is reported to be around 14,000 cars per day. Little change in the demand for steel from that source is expected before orders are placed for January production schedules. Alloy steels are quiet, with prices untested, and makers have not yet named first quarter prices.

The structural market shows a little more life. Inquiries include one for 8000 tons for a building in Detroit. Plain material is in fair demand from crane builders and other manufacturing consumers. Plates are quiet. One Lake boat, requiring 3000 tons of steel, is pending, but an inquiry for another boat has been withdrawn. The Chicago, Burlington & Quincy Railroad is inquiring for 10 to 12 locomotives. Prospective locomotive business that has not yet reached the form of inquiries includes 48 for the Missouri Pacific and 10 for the Denver & Rio Grande Western.

Steel bars in small sizes are quoted at 1.90c. to 2c., Cleveland, the lower price being for round lots, but mills outside of Cleveland are adhering to the 2c., Pittsburgh, price, and some are showing more of a disposition to hold to 2.10c. for car lots. Plates and structural material are firm at 1.90c., Pittsburgh, for the former and 2c. for the latter.

Pig Iron.—Buyers are marking time to see if prices that went up with the advance in fuel will not come down with the decline in fuel prices. The attitude of consumers is that there should be a reduction. Consequently sales are rather light, the aggregate booked by Cleveland furnaces during the week not being much over 10,000 tons. Prices quoted show virtually no change from a week ago, but the market is untested on a round lot for shipment to a competitive point. One Cleveland producer is quoting foundry and malleable iron at $19, furnace, for outside shipment, which seems fairly well established as the market, although another is asking $20 and has taken a little business at that price. In the Valley district there is also a range of from $19 to $20, furnace, with small-lot sales at the higher price. Lake furnace prices outside of Cleveland range from $19 to $20, except in Michigan, where there is a spread of from $20.50 to $21, furnace. For Cleveland delivery the market has settled at $20.50 at furnace, but that is somewhat out of line with the Valley situation, as Valley iron at $19, furnace, can be delivered in Cleveland at about 25c. a ton lower than the price now asked by Cleveland furnaces. However, there were no sales during the week to test the local market. The automotive industry is taking iron a little more freely than after it suspended shipments last month. However, considerable iron is still being held up by some consumers in that field, and, as a re-

Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and structural shapes	2.90c.
Mild steel bars	2.90c.
Cold-finished rounds and hexagons	3.90c.
Cold-finished flats and squares	4.40c.
Hoops and bands	3.65c.
No. 24 black sheets	3.80c.
No. 10 blue annealed sheets	3.25c.
No. 24 galvanized sheets	4.65c.
No. 9 annealed wire, per 100 lb	$3.00
No. 9 galvanized wire, per 100 lb	3.45
Common wire nails, base, per keg	3.00

sult, contract tonnage will probably be carried over until the first quarter. There has been some slowing down in foundry operations in this territory outside of the automotive industry.

Quotations below are per gross ton and, except on basic and low phosphorus iron, are delivered Cleveland, including a 50c. switching charge for local iron. Ohio silvery and Southern iron prices are based on a $3.00 freight rate from Jackson and $6.01 from Birmingham:

Basic, Valley furnace	$18.50 to $19.00
Northern No. 2 fdy., sil. 1.75 to 2.25	21.00
Southern fdy., sil. 1.75 to 2.25	26.01
Malleable	21.00
Ohio silvery, 8 per cent	31.50
Standard low phos., Valley furnace	28.00

Semi-Finished Steel.—With the slowing down of sheet and strip mills, specifications have declined further, and no new orders are being placed.

Sheets.—New demand is very light, and that some producers need orders to keep their mills running is indicated by price concessions, which have become more prevalent during the past week. Quotations of 2.90c., Pittsburgh, on black and 2.20c., Pittsburgh, and 2.30c., Valley, on blue annealed sheets are being made for orders for early shipment. Galvanized sheets are unchanged at 3.85c., Pittsburgh. Automobile body sheets are firm. A little first quarter business has been placed at the prices named for that delivery, but with the understanding that the buyer is to pay the market price should the advance not become effective. Consumers do not look for the general maintenance of the announced first quarter prices.

Strip Steel.—The demand for cold-rolled strip steel continues light, and prices are still irregular. While some producers are still asking 3.50c., others are quoting 3.25c., Cleveland, for car lots, and the market is regarded as around 3c. for round lots. With this low price, the $5 a ton differential is not maintained between regular stock and tube stock, the latter being quoted at around 2.90c., Cleveland, as a minimum. Some of the Ohio mills have considered the adoption of quantity differentials, but as yet have taken no action on the matter and have not come out with first quarter prices. Hot-rolled strip is dull but firm.

Reinforcing Bars.—The contract for a State highway bridge at Ashtabula, Ohio, requiring 650 tons, has been awarded to the Standish Engineering Co., Chicago. Only small-lot sales are reported, on which regular quotations of 2c., Pittsburgh, on new billet steel bars and 1.80c., mill, on rail steel bars are being maintained.

Warehouse Business.—Orders for sheets have fallen off, but this slackening is regarded as largely seasonal. There is a good volume of orders for other products, but they are for very small lots. Prices are firm.

Iron Ore.—While most of the ore boats are on their way down the lakes on their last trips, some of the shippers have a few more cargoes to move and will not finish up until around the end of the month. The season will close with a little more ore at furnaces and docks Dec. 1 than at the same time a year ago. During October 4,947,539 tons of Lake Superior ore was consumed, a gain of 209,727 tons over September The amount consumed in October last year was 4,609,389 tons. The amount on hand at furnaces Nov. 1 was 34,407,147 tons. The amount at furnaces and at Lake Erie docks Nov. 1 was 42,003,715 tons, as compared with 41,197,798 tons on the same date a year ago. Central district furnaces during October consumed 2,602,150 tons, a gain of 137,654 tons. Lake front furnaces consumed 2,099,422 tons, a gain of 63,815 tons, and all-rail furnaces consumed 124,276 tons, a gain of 8887 tons. Eastern furnaces used 121,691 tons, a loss of 619 tons for the month. There were 188 furnaces that used Lake ore in blast Oct. 31, a gain of two for the month.

Coke.—Connellsville foundry coke is holding at $5.50 to $6.50, ovens, or about the same prices that prevailed a week ago. Heating coke has declined further to $3.75 to $4 at ovens. Producers are showing more anxiety for orders, but there is very little demand. Some Ohio by-product coke in egg size has sold at $6.25, ovens, but it is hard to move.

Bolts, Nuts and Rivets.—The demand for bolts and nuts holds up to about recent volume. There is a fair amount of business from railroads and from miscellaneous consumers, but makers are still feeling the effects of the slump in the automotive industry. Rivets are in fair demand, but practically all orders are against contracts.

Old Material.—The market is somewhat weaker on blast furnace grades, but most other quotations are unchanged. The only activity is between dealers, but they have little tonnage left to ship on old orders. Some of the dealers who have been holding scrap for higher prices are disposed to sell some of their material at present levels. Sales to dealers include heavy melting steel at $17.25 for Steubenville delivery and cast iron borings at $11.25 for delivery to a Cleveland consumer.

We quote per gross ton delivered consumers' yards in Cleveland:

Heavy melting steel	$14.50 to $14.75
Rails for rolling	16.25 to 16.50
Rails under 3 ft.	16.50 to 17.00
Low phosphorus billet, bloom and slab crops	18.00 to 18.50
Low phosphorus sheet bar crops	17.00 to 17.50
Low phosphorus plate scrap	17.00 to 17.50
Low phosphorus forging crops	16.50 to 17.00
Cast iron borings	11.00 to 11.25
Machine shop turnings	9.00 to 9.25
Mixed borings and short turnings	11.00 to 11.25
Compressed sheet steel	13.50 to 14.00
No. 1 railroad wrought	11.50 to 12.00
No. 2 railroad wrought	14.75 to 15.00
Railroad malleable	16.50 to 17.00
Light bundled sheet stampings	12.00 to 12.50
Steel axle turnings	12.50 to 13.00
No. 1 cast	16.50 to 17.00
No. 1 busheling	12.00 to 12.50
No. 2 busheling	11.00 to 11.25
Drop forge flashings, 15 in. and under	11.50 to 12.00
Railroad grate bars	12.50 to 13.00
Stove plate	12.50 to 13.00
Pipes and flues	10.00 to 10.50

Philadelphia

Steel Sales Drop 10 to 15 Per Cent from October Volume—Pig Iron Dull

PHILADELPHIA, Nov. 23.—Although the complaint is general among sellers of steel products that business is extremely quiet, actual figures of sales so far this month indicate that the decline from the October volume, excepting in rails, will not be more than 10 to 15 per cent. Two factors tend to restrict ordering of steel—the desire of manufacturing consumers and jobbers to keep stocks at a minimum through the inventory period and the decline in the volume of building construction. Both are conditions to be expected at this time of year.

With the new year only five weeks away, the apathy of consumers toward first quarter contracting is very marked. Buyers of steel do not expect prices to go higher, and they are watching the price situation closely to see whether the trend may be the other way, as in sheets. Present weakness in sheet prices points to difficulties that may beset the mills in obtaining the levels that have been announced for first quarter.

Apathy of buyers extends to pig iron, in which the volume of business in the past week was possibly the lowest of the year. Some eastern Pennsylvania furnaces have taken little or no tonnage in two weeks, but they are in comfortable position with good order books.

The most striking development was the placing of additional orders for locomotives—75 from the Pennsylvania and 20 from the Western Maryland—all with the local builder, giving that concern a total of about 200 engines for which contracts have recently been entered. Railroad demand for rolled steel products has also shown a gain.

Pig Iron.—Aside from 1500 tons of "floor" iron reported to have been purchased by the Baldwin Locomotive Works for early delivery and 800 tons of foundry grades for first quarter bought by the Pusey & Jones Co., Wilmington, Del., the local pig iron market has been devoid of sales of importance in the week. Most of the business has consisted of carload lots, and there has been little of that. With the easing in coke prices, furnaces now recognize that sales for first quar-

ter at present prices are desirable, but consumers evidently think otherwise, for there is a minimum of interest in first quarter contracting beyond that which was done in October at prices lower than those now quoted. Eastern Pennsylvania furnaces continue to name base prices of $22.50 and $23, furnace, with 50c. additional for No. 2X. Small sales of No. 1X have been made at $24, furnace, the highest price that has been paid in this district for foundry iron. Importers who have foreign iron to sell for early delivery are following domestic prices closely, usual quotations being about $22.50, Philadelphia, for either No. 2 plain or No. 2X iron.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$23.26 to $23.76
East. Pa. No. 2X, 2.25 to 2.75 sil.	23.76 to 24.26
East. Pa. No. 1X	24.26 to 24.76
Basic delivered eastern Pa.	23.00 to 23.50
Gray forge	23.00 to 23.50
Malleable	23.50 to 24.00
Standard low phos. (f.o.b. New York State furnace)	24.00 to 25.00
Copper bearing low phos. (f.o.b. furnace)	25.00 to 26.00
*Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
*Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17

*The freight rate from Virginia furnaces to Philadelphia is $5.17 per gross ton.

Ferroalloys.—Consumers of ferromanganese who have 1926 contracts are specifying in full, which means that practically all of them are taking the maximum that their contracts call for. Most of the contracts were made with minimum and maximum requirements stated, and the deliveries on contracts, when specified fully, will take care of the needs of such consumers well into first quarter. Under the circumstances there is no rush to make first half contracts at $100, seaboard, and but few contracts have been entered. Efforts of some consumers to obtain concessions on the price of British ferromanganese have met with firm refusal on the part of the British producers to consider anything less than $100 for first half.

Billets.—The past week's ordering of billets has shown a gain. Sales have been made on the basis of $35, Pittsburgh, for rerolling quality and $40, Pittsburgh, for ordinary forging quality.

Plates.—Recent orders of the Baldwin Locomotive Works, giving that concern a total of about 200 engines to build, have been beneficial to some of the Eastern plate mills. A total of about 8000 tons of plates will be required by the locomotive company. The latest locomotive orders are from the Pennsylvania, which bought 75, and the Western Maryland, which will take 20. Quotations on plates continue uniformly at 1.90c., Pittsburgh. Mills of this district are operating at from 40 to 60 per cent.

Structural Shapes.—A decline in the volume of building construction has affected both structural shape mills and fabricators. The latter are ordering material sparingly, most of them having little work on hand. Prices on fabricated steel are low, reflecting the efforts of fabricating shops to get business with or without profit. Plain material prices range from 1.90c. to 2c., Pittsburgh. One Eastern mill is reported to be quoting 2.05c., mill. Considerable building work is pending, but much of it will not be closed in time to get into the mills this year.

Bars.—This month has brought a sharp decline in the volume of specifications for steel bars both for building construction and manufacturing. Manufacturing consumers ordered heavily in the past few months, and the logical explanation for the present decline in business is that they are using up stocks, knowing that the mills can fill orders quickly when more material is needed. Sporadic efforts on the part of buyers to obtain price concessions from 2c., Pittsburgh, have apparently met with failure.

Sheets.—Both buyers and sellers of sheets are watching the existing price situation closely with a view to its probable effect on all steel prices for first quarter. Although practically all of the mills have announced first quarter prices to be 2.40c. on blue annealed, 3.10c. on black and 3.95c. on galvanized, Pittsburgh base, current sales for delivery over the remainder of this year are being made at $2 and $3 a ton under these figures. Very little, if any, first quarter contracting has been done, and it remains to be seen what effect the present price situation in sheets will have on the desire of the mills to obtain the higher level after Jan. 1. Suspension of shipments by some of the automobile companies has put some companies which recently had full order books in the position of aggressive sellers.

Strip Steel.—Although quotations on hot-rolled strip steel are being well maintained at 2.30c. and 2.50c., Pittsburgh, the prices which have ruled for some time, the price situation on cold-rolled strips presents a variety of quotations, governed solely by the need of the individual mill for business. Most of the quotations are about 3c., Pittsburgh, but sales of comparatively small lots have been made at figures below 3c.

Warehouse Business.—Not only is business rather slow with local warehouses, but price cutting, particularly on steel bars and sheets, is again a factor.

Imports.—Last week 9000 tons of pig iron from Germany was received through the port of Philadelphia, most of it consigned, so it is reported, to one of the cast iron pipe companies. The only other shipment of pig iron to come in was 100 tons from the Netherlands. Imports of other commodities were as follows: Chrome ore from Portuguese East Africa, 3245 tons; blooms from France, 609 tons; cast iron pipe from France, 605 tons; steel bands from Belgium, 24 tons; round bars from Belgium, 14 tons; structural steel from Germany, 18 tons.

Old Material.—The scrap market is exceedingly dull, and prices have changed but little, but where there has been any change it is downward. Most of the steel mills have more steel scrap bought than they are needing for their present rate of consumption.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	$15.50 to $16.00
Scrap rails	15.50 to 16.00
Steel rails for rolling	17.00 to 17.50
No. 1 low phos., heavy, 0.04 per cent and under	20.00 to 21.00
Couplers and knuckles	18.50 to 19.00
Rolled steel wheels	18.50 to 19.00
Cast iron carwheels	16.50 to 17.00
No. 1 railroad wrought	17.00 to 17.50
No. 1 forge fire	13.00 to 13.50
Bundled sheets (for steel works)	13.00
Mixed borings and turnings (for blast furnace)	12.50 to 13.00
Machine shop turnings (for steel works)	13.00
Machine shop turnings (for rolling mill)	13.00 to 13.50
Heavy axle turnings (or equivalent)	14.00 to 14.50
Cast borings (for steel works and rolling mill)	13.00 to 13.50
Cast borings (for chemical plant)	15.00 to 16.00
No. 1 cast	17.00 to 17.50
Heavy breakable cast (for steel works)	16.00
Railroad grate bars	13.00 to 13.50
Stove plate (for steel works)	13.00 to 13.50
Wrought iron and soft steel pipes and tubes (new specifications)	14.00 to 14.50
Shafting	21.00 to 22.00
Steel axles	23.00 to 24.00

Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Tank steel plates, ¼-in. and heavier	2.80c. to 3.00c.
Tank steel plates, ⅜-in.	3.00c. to 3.20c.
Structural shapes	2.75c. to 3.00c.
Soft steel bars, small shapes and iron bars (except bands)	3.00c. to 3.20c.
Round-edge iron	3.50c.
Round-edge steel, iron finished, 1⅛ x 1½ in.	2.50c.
Round-edge steel, planished	4.30c.
Reinforcing steel bars, square, twisted and deformed	3.00c.
Cold-finished steel, rounds and hexagons	4.00c.
Cold-finished steel, squares and flats	4.50c.
Steel hoops	4.00c. to 4.25c.
Steel bands, No. 12 gage to ⅛-in., inclusive	3.75c. to 3.90c.
Spring steel	5.00c.
No. 24 black sheets	4.35c.
No. 10 blue annealed sheets	3.50c.
No. 24 galvanized sheets	5.30c.
Diamond pattern floor plates—	
¼-in.	5.30c.
⅜-in.	5.50c.
½-in.	3.20c.
Rails	3.50c.
Tool steel	6.60c.
Swedish iron bars	

San Francisco

Steel Buying Declines—Coke Market Unaffected by End of British Strike

SAN FRANCISCO, Nov. 20 (*By Air Mail*).—With a falling off of buying in nearly all departments of the market, the firmness of prices is again becoming a subject for discussion among local buyers. It has come up several times during the week, despite the fact that recently there has been no indication and no cause for price shading, except in local out-of-stock quotations on reinforcing bars, which have no bearing on the general price situation. But there is undoubtedly an inclination on the part of some buyers to question the apparent firmness of quotations on the heavier forms of steel, and there are some who believe that the near future will bring out evidences of price shading. Naturally, most sellers are endeavoring to discourage this view, and if representatives of Eastern mills continue to adhere to their present policy, prevailing quotations on the major steel products are not likely to change for some time to come. Incidentally, while there are a number of pending projects that call for a substantial aggregate tonnage of fabricated steel, there are relatively few individual jobs of a size warranting a severe test of prices.

Of interest during the week was the arrival of a shipment of about 800 tons of Belgian steel, of which 200 tons was structural material. The remainder consisted of about 500 tons of merchant and reinforcing bars, 1000 kegs of wire nails and 1600 rolls of wire fabric.

Pig Iron.—Buyers have not yet come into the market for their first quarter requirements. According to present indications, quotations on Utah foundry for first quarter delivery will be about the same as those named at the opening of business for the fourth quarter.

	Per Gross Ton
*Utah basic	$25.00 to $26.00
*Utah foundry, sil. 2.75 to 3.25	25.00 to 26.00
**Indian foundry, sil. 2.75 to 3.25	25.00
**German foundry, sil. 2.75 to 3.25	24.25

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—Outstanding among the inquiries of the week are two structural jobs, one an office building in Los Angeles, which calls for 2000 tons, and the other a warehouse in Seattle, Wash., which will require 1200 tons. Bids on 100 tons for a municipal garage for the city of Oakland, Cal., have been rejected. The only structural steel letting reported during the week was 100 tons for an apartment house in San Francisco, taken by the Schrader Iron Works. Eastern mills continue to quote plain material at 2.35c., c.i.f. Coast ports.

Plates.—In Los Angeles the California Petroleum Corporation awarded 930 tons to the Western Pipe & Steel Co., and the Shell Oil Co. placed 310 tons with the Llewellyn Iron Works for tank construction. No inquiries of importance have appeared. Eastern mills quote plates at 2.30c., c.i.f. Coast ports.

Bars.—Local reinforcing bar jobbers booked about 1030 tons during the week, and fresh inquiries call for over 1100 tons. The largest individual letting, 400 tons for the Grove Street pier, Oakland, Cal., was placed with an unnamed San Francisco jobber. Price shading in the local jobbing trade continues, and out-of-stock quotations are nominal. Local concrete bar jobbers' minimum quotations range from about 2.30c. to 2.45c., base per lb., on lots of 200 tons.

Cast Iron Pipe.—The city of Medford, Ore., has awarded 315 tons as follows: 215 tons of 6, 8 and 10-in. Class B pipe to the American Cast Iron Pipe Co., and 100 tons of 16-in. Class B pipe to the United States Cast Iron Pipe & Foundry Co. The Grinnell Co. of the Pacific has taken 500 tons of 18-in. Class B pipe for the South San Francisco Water Co., and 281 tons of 16-in. Class B pipe for the city of Huntington Park, Cal. About 258 tons of 2 to 8-in. Class B pipe will be required by San Luis Obispo County. The city of Fairfield, Cal., is expected to be in the market before the end of the year for about 300 tons of 4, 6 and 8-in. Class B pipe.

Steel Pipe.—The Republic Supply Co., Los Angeles, has been awarded 286 tons of standard steel pipe by the city of Los Angeles.

Rails and Track Supplies.—Bids will be opened Nov. 22 by the Los Angeles County Flood District on 1800 to 1900 tons of 70 to 80-lb. standard rails.

Coke.—Reports of the virtual settlement of the British coal strike have had no material effect on the local coke market. Importers say that it will be many months before British coke is sold in San Francisco. Quotations on German by-product fuel are unchanged at approximately $15 per net ton at incoming dock. In the opinion of local importers it is unlikely that there will be any price recession for some time on German coke, because of the substantial bookings that German ovens have made since the beginning of the British strike and the difficulties of obtaining prompt shipments here.

Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and structural shapes	3.30c.
Mild steel bars and small angles	3.30c.
Small channels and tees, ¾-in. to 2¾-in.	3.90c.
Spring steel, ¼-in. and thicker	5.00c.
No. 24 black sheets	4.90c.
No. 28 black sheets	5.15c.
No. 10 blue annealed sheets	4.00c.
No. 24 galvanized sheets	5.65c.
No. 28 galvanized sheets	6.15c.
Common wire nails, base per keg	$3.75
Cement coated nails, 100-lb. keg	3.75
Cement coated nails, count kegs	3.00

Toronto

Pig Iron Advances 50c—Scrap Market Is Listless

TORONTO, ONT., Nov. 23.—An advance of 50c. per ton has been made in Canadian pig iron prices, effective both at Toronto and Montreal. This is the second increase in prices in the Canadian market in the past six weeks. While the first advance had the effect of bringing a large number of lagging melters into the market with last quarter contracts, the present increase has had very little bearing on demand. Virtually all of the melters who place quarterly contracts are covered for the remainder of this year at $24.80 or $25.30 per ton, with the result that it is only those who neglected to place contracts that are affected by the advance. Inquiries are being received for first quarter iron, but furnaces do not appear anxious for business beyond the end of the year. Some large consumers, however, have bought for first quarter, and a few for second quarter. Current business is chiefly in lots ranging from 50 to 100 tons for spot delivery. Specifications against contracts are in good volume. Prevailing prices are as follows: No. 1 foundry (2.25 to 2.75 per cent silicon) and malleable, $25.80; No. 2 foundry (1.75 to 2.25 per cent silicon), $25.30 per gross ton, Toronto. Montreal prices are, No. 1 foundry and malleable, $28.20; No. 2 foundry, $27.70.

Old Material.—A falling off in demand featured the market during the week. Dealers' buying prices are as follows:

	Toronto	Montreal
Per Gross Ton		
Steel turnings	$8.50	$8.00
Machine shop turnings	8.50	7.00
Wrought pipe	6.00	6.00
Rails	11.00	10.00
No. 1 wrought	11.00	14.00
Heavy melting steel	11.00	9.00
Steel axles	16.00	17.00
Axles, wrought iron	18.00	19.00
Boiler plate	10.00	8.00
Heavy axle turnings	9.00	8.50
Cast borings	8.50	7.50
Per Net Ton		
Standard carwheels	15.00	16.00
Malleable scrap	14.00	14.00
Stove plate	10.00	13.00
No. 1 machinery cast	16.00	18.00

Seattle

Sharp Competition in Wire Nails, Sheets and Bars—Imports Cause Concern

SEATTLE, Nov. 19 (*By Air Mail*).—A seasonal decline in business is reported by local sales offices of Eastern steel companies and also by jobbers. This is not causing much concern in the trade, as indications are that after the first of the new year there will be a revival in demand, since stocks held by consumers and jobbers are very low.

There is, however, some concern over the increasing amount of foreign steel coming in. A boat arrived here this week with more than 500 tons of German shapes and plates, consigned to a local importer. This steel is now being offered and sold at prices somewhat under the market for domestic steel. Heavy imports of steel are also coming into Portland, disturbing the market in that city to considerable extent.

Another disturbing local feature is the very keen competition now on between a Coast steel mill and an Eastern maker, especially in wire nails and bars. Both companies carry stocks here, from which the small trade is being supplied at prices very close to those quoted on car lots. As a result, two local jobbers have just lowered warehouse prices on steel bars $5 per ton, while wire nails in small lots are selling at only 10c. per keg above the carload price.

Pig Iron.—Only occasional small lots are being sold. Utah basic and foundry grades are being quoted at $25 to $26 per gross ton, f.o.b. Seattle.

Plates.—Bids will be opened Dec. 2 on 3000 to 5000 tons of plates for the Yakima water line, and this tonnage is expected to be placed at a slightly lower figure than the regular open price. Two other water lines are in prospect, but these may not come out until after the first of the year. Bids are expected to be asked early next month on a Government job at Thorp, Wash., requiring close to 5000 tons. The ruling market on plates of tank quality is 2.30c. per lb., delivered Seattle, but this price might be shaded $1 a ton on a very attractive order.

Structural Material.—Bids are to open on Nov. 23 on about 2000 tons for the local Paramount theater, while tonnage in sight includes Government work at Twin Falls, Idaho, 3000 tons; two city bridges over the Duwamish River, one 350 tons and the other 600 tons, and the Meier Frank garage at Portland, 2000 tons. Much other work is in prospect, but is not ready for announcement. Shapes remain firm at 2.35c. per lb., delivered Seattle.

Wire Products.—There is sharp competition in the local market between a Coast mill and an Eastern maker, with the result that prices are being shaded, especially in small lots for delivery from warehouse. The carload price on wire and cement coated nails remains nominally at $3.20, base, per 100-lb. keg, but this is being shaded. Small lots are being sold at as low as $3.30, base, per 100-lb. keg, delivered.

Sheets.—The local price situation in sheets is unsatisfactory because of severe competition between two Coast mills and several Eastern mills for the trade in this territory. The Coast mills have the advantage in freight rates and deliveries, and seem to be taking a large part of the tonnage that is being placed. Mill prices on sheets, c.i.f. Seattle, remain: No. 24 black, 3.68c. per lb.; No. 24 galvanized, 4.53½c., and No. 10 blue annealed, 2.97½c. These prices are not the minimum, being shaded by several Eastern makers and also by Coast mills.

Steel Bars.—Demand for merchant bars is light, but business in reinforcing bars is rather active. The local mill has taken 550 tons for the new Liggett drug building, while a larger amount will be needed for the local Paramount theater, on which bids will be opened in a few days. Steel bars are quoted at 2.35c. per lb., and reinforcing bars at 2.30c. to 2.35c., delivered.

Warehouse Trade.—Local jobbers report that business in the first half of November has shown a considerable falling off as compared with the same period last month. The price situation is weaker, especially in sheets and wire products. Two local jobbers have reduced prices on bars $5 per ton, and now quote 2.75c. per lb., delivered Seattle.

St. Louis

Steel Warehouse Trade Improves — Pig Iron Buying Recedes

ST. LOUIS, Nov. 23.—After several weeks of an active market, there has been a falling off in pig iron buying by consumers in the St. Louis district. Sales of the St. Louis Coke and Iron Corporation during the week totaled approximately 5000 tons, including lots of from 200 to 1000 tons. Shipments are being well maintained. The most important inquiry before the market is 2500 tons of foundry iron for an Iowa melter, and a melter in the St. Louis district is in the market for 1000 to 2000 tons of basic. Prices are firm and unchanged.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices $2.16 freight from Chicago, $4.42 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$22.16
Northern malleable, sil. 1.75 to 2.25	22.16
Basic	22.16
Southern fdy., sil. 1.75 to 2.25	24.42
Granite City iron, sil. 1.75 to 2.25	$22.31 to 22.81

Old Material.—The market is extremely dull. Consumers still have fairly large stocks and until their business improves will buy no scrap, except, of course, an occasional "distress" car that can be picked up at bargain prices. Dealers are buying at present levels, which they consider low, and are laying the material down. Prices are unchanged. Railroad lists which are smaller in tonnage than for some time, include: St. Louis-San Francisco, 1250 tons, including 500 tons of wheels; St. Louis Southwestern, 1100 tons; Clover Leaf, 250 tons, and Baltimore & Ohio, 150 tons of bridge scrap.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	$10.50 to $11.00
Rails for rolling	15.25 to 15.75
Steel rails less than 3 ft.	16.50 to 17.00
Relaying rails, 60 lb. and under	20.50 to 23.50
Relaying rails, 70 lb. and over	26.50 to 29.00
Cast iron carwheels	15.25 to 15.75
Heavy melting steel	13.00 to 13.50
Heavy shoveling steel	13.00 to 13.50
Frogs, switches and guards cut apart	14.00 to 14.50
Railroad springs	16.75 to 17.25
Heavy axle and tire turnings	10.50 to 11.00
No. 1 locomotive tires	16.00 to 16.50
Per Net Ton	
Steel angle bars	12.50 to 13.00
Steel car axles	17.50 to 18.00
Iron car axles	20.00 to 20.50
Wrought iron bars and transoms	18.00 to 18.50
No. 1 railroad wrought	11.75 to 12.25
No. 2 railroad wrought	11.50 to 12.00
Cast iron borings	9.00 to 9.50
No. 1 busheling	10.00 to 10.50
No. 1 railroad cast	14.50 to 15.00
No. 1 machinery cast	16.50 to 17.00
Railroad malleable	12.25 to 12.50
Machine shop turnings	6.50 to 7.00
Bundled sheets	7.50 to 8.00

Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and structural shapes	3.25c.
Bars, mild steel or iron	3.15c.
Cold-finished rounds, shafting and screw stock	3.75c.
No. 24 black sheets	4.45c.
No. 10 blue annealed sheets	3.60c.
No. 24 galvanized sheets	5.25c.
Black corrugated sheets	4.65c.
Galvanized corrugated sheets	5.30c.
Structural rivets	3.65c.
Boiler rivets	3.85c.

	Per Cent Off List
Tank rivets, ¾-in. and smaller	70
Machine bolts	60 and 5
Carriage bolts	67½
Lag screws	65 and 5
Hot-pressed nuts, square, blank or tapped	3.25c. off per lb.
Hot-pressed nuts, hexagons, blank or tapped	3.75c. off per lb.

Finished Iron and Steel.—The purchase of 1,000,000 tie plates by the Missouri-Kansas-Texas Railroad from the Scullin Steel Co. is reported this week. Demand for structural steel is dull, and fabricators in the district, with one or two exceptions, are in need of business. Warehouse trade is far ahead of what it was in the same period last year. The gain is due to heavier buying in the oil fields of Oklahoma and Texas.

Coke.—The market continues extremely active, with the cold weather stimulating an already heavy demand for domestic grades. The by-product ovens in the district are well sold, with only chestnut sizes available from the Granite City producer. Consumers of foundry coke are pressing for shipments against contracts.

Birmingham

Rail Bookings Total 300,000 Tons—Pig Iron Unchanged at $20 for First Quarter

BIRMINGHAM, Nov. 23.—Blast furnaces have opened their books for the first quarter of 1927, with prices unchanged on the basis of $20, Birmingham, for No. 2 foundry pig iron. While a few orders have been taken for that delivery, the larger melters have not yet given any indication as to when they will come into the market. The demand for small lots continues fairly active, particularly from stove foundries. One producer of pig iron reports that its probable output during the remainder of the year is virtually all sold. Another large furnace interest is also comfortably booked. Deliveries are in good volume, slightly exceeding production. No furnaces will be shut down or banked during the holidays, and there will be a minimum interruption of operations among most melters.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$20.00
No. 1 foundry, 2.25 to 2.75 sil.	20.50
Basic	20.00
Charcoal, warm blast	30.00

Rolled Steel.—Considerable unfilled tonnage, including upward of 300,000 tons of rails, will be on the books of Southern mills at the first of the year. The new open-hearth furnaces at Fairfield, Ala., will permit steadier operation of several finishing mills that have had to give way from time to time to other mills under the pressure of demand. Improved sentiment in the cotton-growing section of the South has been reflected in a revival of demand for lighter steel products, including wire and nails. Mill prices are unchanged.

Cast Iron Pipe.—Lettings of pressure pipe continue to decline, but unfilled obligations will warrant active output for some time. Prices remain unchanged at $39 to $40 per net ton, Birmingham, for 6-in. and larger diameters. Trade has tapered off in soil pipe and fittings.

Coke.—Contracts are still being closed, and independent producers are very busy filling their obligations. Foundry coke remains at $5.50 per net ton, Birmingham, with an occasional small lot for spot shipment bringing as high as $6.

Old Material.—There is a heavy movement of scrap from dealers to consumers, and offerings by producers of old material are still large. Heavy melting steel is the most active grade. The larger consumers have made liberal purchases of heavy melting steel and are freely accepting shipments against contracts. Quotations are unchanged.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	13.00 to 14.00
Railroad wrought	11.00 to 12.00
Steel axles	17.00 to 18.00
Iron axles	17.00 to 18.00
Steel rails	13.00 to 14.00
No. 1 cast	16.00 to 17.00
Tramcar wheels	16.50 to 17.50
Carwheels	16.00 to 16.50
Stove plate	14.00 to 14.50
Machine shop turnings	8.00 to 8.50
Cast iron borings	8.00 to 8.50
Rails for rolling	15.00 to 16.00

Cincinnati

Reaction in Pig Iron and Coke Markets—Scrap Shipments Suspended

CINCINNATI, Nov. 23.—With the outlook in the fuel market less troublesome and with but scant probability of an advance in prices, pig iron consumers are reluctant to make first quarter purchases, preferring instead to see what developments the next few weeks will bring forth. As a result, sales in the past week have totaled scarcely more than 5000 tons, and active inquiries before the trade are of little consequence. It is estimated that only about 10 per cent of the buyers in this territory have covered their first quarter needs. Jackson County silvery producers have increased their schedule $1 a ton for 1927 delivery, the newly established quotations being on the basis of $29.50, base furnace, for 8 per cent. However, silvery iron for prompt shipment remains at the old prices. Just prior to the announcement of the advance, local dealers sold about 1500 tons of silvery, one lot of 500 tons going to a Michigan melter. Competition from Lake furnaces has cropped out again, and an order from a southern Ohio consumer for 1000 tons of foundry iron was booked at $18.25, base Cleveland. Ironton furnaces, however, will not accept business at less than $20, base furnace, and single carloads are being taken at $20.50. Malleable iron producers are holding to $20, base Ironton, in southwestern Ohio, but are forced to dip under that price in the central part of the State because of low quotations made by Lake sellers. Little Southern iron at $20, base Birmingham, is being sold north of the Ohio River. A local dealer has booked 1000 tons of malleable for delivery to a Michigan consumer. The Andrews Steel Co., Newport, Ky., is inquiring for 900 tons of 50 per cent ferrosilicon and a like amount of 75 per cent ferrosilicon for the first quarter.

Based on freight rates of $3.69 from Birmingham and $1.89 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base)	$23.69
Alabama fdy., sil. 2.25 to 2.75	24.19
Tennessee fdy., sil. 1.75 to 2.25	23.69
Southern Ohio silvery, 8 per cent	30.39
So. Ohio fdy., sil. 1.75 to 2.25	$21.89 to 22.39
So. Ohio malleable	21.39

Finished Material.—There is considerable disparity between the reports of the sellers in this territory. Some state that specifications and orders are running ahead of those in October, but others declare that bookings have declined sharply in the past two weeks. On the whole, however, the market is much less active than a month ago, and little fresh business of consequence is expected to materialize until after Jan. 1. The opening of books for the first quarter by sheet mills has evoked only passing interest on the part of consumers, who are disposed to await further developments before placing 1927 tonnage. In fact, practically all sheet buyers are protected by contracts closed before the present prices became effective. In some cases small independent mills are taking orders for black and galvanized sheets for prompt delivery at 3c. and

Warehouse Prices, f.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes	3.40c.
Bars, mild steel or iron	3.30c.
Reinforcing bars	3.30c.
Hoops	4.00c. to 4.25c.
Bands	3.95c.
Cold-finished rounds and hexagons	3.85c.
Squares	4.35c.
Open-hearth spring steel	4.75c. to 5.00c.
No. 24 black sheets	4.05c.
No. 10 blue annealed sheets	3.60c.
No. 24 galvanized sheets	4.90c.
Structural rivets	3.75c.
Small rivets	65 per cent off list
No. 9 annealed wire, per 100 lb	$3.00
Common wire nails, base per keg	2.95
Cement coated nails, base per 100-lb. keg	3.15
Chain, per 100 lb	7.55
	Net per 100 Ft.
Lap welded steel boiler tubes, 2-in.	$18.00
4-in.	38.00
Seamless steel boiler tubes, 2-in.	19.00
4-in.	39.00

3.85c., base Pittsburgh, respectively, but the larger producers are refusing to accept business at less than 3.10c. and 3.95c. Blue annealed sheets are holding well at 2.40c., base Pittsburgh. Both electrical and automobile body sheets are quiet. Sheet mills in this district are operating at 75 to 80 per cent of capacity. The bar market shows more activity, with sales to widely diversified industries. Prices are steady at 2c., base Pittsburgh. Tank plates are moving at a moderate rate at 1.90c., base Pittsburgh, and structural shapes are firm at 2c., base Pittsburgh. Consumers of wire goods are buying only in small quantities for quick delivery, but prices are considered satisfactory, except at river points. Common wire nails are quoted at $2.65 per keg, Ironton or Pittsburgh, and plain wire at $2.50 per 100 lb., Ironton or Pittsburgh. Fabricators in this territory have a fair amount of work ahead of them.

Reinforcing Bars.—The Pollak Steel Co. will furnish 200 tons of bars for an addition to the plant of the Ault & Wiborg Co., Cincinnati. No new projects of consequence have appeared in the past week, and there is little work pending. New billet bars remain at 2c., base Pittsburgh, and rail steel bars at 1.90c., base mill.

Warehouse Business.—The volume of business has been well sustained in the past week, and jobbers declare that November will be one of the best months of the year. Plates, reinforcing bars and sheets continue to form the bulk of the tonnage booked. Prices are firm and unchanged.

Coke.—Anticipating a sharp break in prices of beehive coke, buyers have practically suspended purchases for the moment. Thus, while quotations nominally are the same as a week ago, sales have been exceptionally light. New River foundry grades are being maintained at $9 per net ton at ovens, but a decrease of $1 is expected soon. With an added production cost of 58c. a ton occasioned by the increase recently granted to mine workers, at least one Wise County coke company has issued new schedules calling for $5.50 to $6, ovens, on foundry grades and $5.25 to $5.50 on furnace coke. Demand for by-product foundry coke has eased off somewhat, but the price for next month is expected to be $8, ovens, an increase of 50c. a ton for all sellers except one, who already is on that basis. Several dealers report that distress furnace coke from the Connellsville district is being offered at as low as $3, ovens.

Based on freight rates of $2.14 from Ashland, Ky., and $2.59 from Wise County ovens and New River ovens, we quote f.o.b. Cincinnati: Wise County foundry, $8.09 to $9.59; New River foundry, $11.59; by-product foundry, $9.64 to $10.14.

Old Material.—The market is quiet. Steel plants in this territory are operating at a reduced rate and are finding it necessary to pile scrap now being received on contract. In some instances mills have been compelled to ask for temporary suspension of shipments. Prices are unchanged.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel	$12.50 to $13.00
Scrap rails for melting	12.50 to 13.00
Short rails	17.50 to 18.00
Relaying rails	26.50 to 27.00
Rails for rolling	14.00 to 14.50
Old carwheels	12.00 to 12.50
No. 1 locomotive tires	16.50 to 17.00
Railroad malleable	14.50 to 15.00
Agricultural malleable	13.50 to 14.00
Loose sheet clippings	7.00 to 7.50
Champion bundled sheets	8.50 to 9.00
Per Net Ton	
Cast iron borings	7.50 to 8.00
Machine shop turnings	7.00 to 7.50
No. 1 machinery cast	17.00 to 18.00
No. 1 railroad cast	14.00 to 14.50
Iron axles	19.50 to 20.00
No. 1 railroad wrought	9.00 to 9.50
Pipes and flues	7.50 to 8.00
No. 1 busheling	9.00 to 9.50
Mixed busheling	5.50 to 6.00
Burnt cast	6.50 to 7.00
Stove plate	9.00 to 9.50
Brake shoes	9.50 to 10.00

The Exposition of Power and Mechanical Engineering to be held in the Grand Central Palace, New York, from Dec. 6 through Dec. 11, 1926, will occupy four floors and contain displays of about 500 manufacturers. The advances in transforming coal and oil into heat and power will be covered.

Buffalo

Merchant Blast Furnaces Well Booked for First Quarter—Sheets Weaken

BUFFALO, Nov. 23.—Demand for pig iron has tapered, and the market is much quieter. Most furnaces have well filled order books for the first quarter, since most melters have covered for the first quarter and a few for the first half. Inquiry last week was light, and it is probable that not more than 6000 or 7000 tons of business was placed. This tonnage was taken on the basis of $20, furnace, for Buffalo district points, and $19 in competitive territory. The interest that had been quoting $20 and $21 has not receded from that position, but is not booking any business at those figures. A report that $18.50, Buffalo furnace, was done is probably true, but it is said that this figure was only offered in one instance.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

No. 2 plain fdy., sil. 1.75 to 2.25	$19.00 to $20.00
No. 2X foundry, sil. 2.25 to 2.75	19.50 to 20.50
No. 1X foundry, sil. 2.75 to 3.25	20.50 to 21.50
Malleable, sil. up to 2.25	20.00
Basic	19.00
Lake Superior charcoal	27.28

Finished Iron and Steel.—Business in bars and shapes is fairly good, but not up to the volume of a few weeks ago. In the sheet market demand is fair, but prices are not so firm as heretofore. Sheet makers are trying to hold to 3.10c., Pittsburgh, for No. 24 black, but with difficulty. Bolt and nut business is in good volume. The 650 tons of reinforcing steel for the new Buffalo flour mill of the International Milling Co., Minneapolis, will probably be awarded soon, as the announcement has just been made that the general contract has been placed. The general contractors are Peterson & Caldwell, a Minneapolis firm. Warehouse business is quiet.

Old Material.—The market is a little depressed, and most of the prices quoted are nominal. New buying has been light, none of the mills apparently being interested at the present time. A large volume of old orders is out, and in some cases dealers are having shipments held up. These restrictions may be taken off in a few days. Some sales of stove plate have been made at $14.50 to $14.75, and an occasional sale of No. 1 cast scrap is made at $16 to $16.25. The production of scrap is still dropping, particularly in the automotive industry. There have been some sales of shoveling turnings at $12 to $12.50, Buffalo, a firm price. Mill operation is being gradually cut.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel	$15.50 to $16.00
Selected No. 1 heavy melting steel	17.00 to 17.50
Low phosphorus	18.00 to 19.00
No. 1 railroad wrought	14.00 to 14.50
Carwheels	16.00 to 16.50
Machine shop turnings	10.50 to 10.75
Mixed borings and turnings	12.00 to 12.50
Cast iron borings	12.00 to 12.50
No. 1 busheling	15.50 to 16.00
Stove plate	14.50 to 14.75
Grate bars	12.00 to 13.00
Hand bundled sheets	10.50 to 11.50
Hydraulic compressed	15.50 to 16.00
No. 1 machinery cast	16.00 to 16.25
Railroad malleable	16.50 to 17.00
Iron axles	24.00 to 25.00
Steel axles	16.00 to 16.50
Drop forge flashings	13.00 to 13.50

Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and structural shapes	3.40c.
Mild steel bars	3.30c.
Cold-finished shapes	4.45c.
Rounds	3.95c.
No. 24 black sheets	4.30c.
No. 10 blue annealed sheets	3.80c.
No. 24 galvanized sheets	5.15c.
Common wire nails, base per keg	$3.90
Black wire, base per 100 lb	3.90

Boston

Demand for Pig Iron and Coke Drops to Small Proportions

BOSTON, Nov. 23.—The pig iron buying movement in New England apparently has spent itself, for business during the past week dropped to small proportions and at the moment there are no open inquiries of importance. Details regarding an inquiry for 1000 tons of No. 2X iron for first quarter from a Vermont foundry and for 300 tons low silicon iron from a New Hampshire melter are unobtainable, and it is assumed that some Northern furnace not regularly represented here took the business at prices equivalent to less than $19, base Buffalo. New York State No. 2X iron, previously held at $21.50 on cars, furnace, is reported to have been offered at $1 a ton less. Pig iron sellers maintain that the New England melt of iron is running ahead of the October rate and that another buying movement will start late in 1926 for first quarter. It is officially denied that the Boston & Albany Railroad has put into effect new freight rates from Buffalo furnaces to certain New England points, showing reductions. New rates are under consideration, however. The question of new rates was brought about by the fact that the new rates published from Troy, N. Y., to the points in question make a combination of local rates from Buffalo to Troy and from Troy to Boston & Albany and Boston & Maine points intermediate to Boston, that are lower than the present rate of $4.91 from Buffalo. In order to adjust this it will be necessary to raise the rate from Buffalo to Troy or reduce the rate from Buffalo to New England. The Boston & Maine Railroad has put into effect new rates showing reductions ranging from 15c. to 75c. a ton.

We quote delivered prices per gross ton to most New England points as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia, and $6.91 to $8.77 from Alabama:

East. Penn., sil. 1.75 to 2.25	$25.65 to $26.15
East. Penn., sil. 2.25 to 2.75	26.15 to 26.65
Buffalo, sil. 1.75 to 2.25	23.41 to 23.91
Buffalo, sil. 2.25 to 2.75	23.41 to 24.41
Virginia, sil. 1.75 to 2.25	28.42 to 29.92
Virginia, sil. 2.25 to 2.75	28.92 to 30.42
Alabama, sil. 1.75 to 2.25	26.91 to 28.77
Alabama, sil. 2.25 to 2.75	27.41 to 29.27

Imports.—While imports of foreign pig iron are still comparatively small, they were running ahead of those for October. During the first half of November 2110 tons of German iron was received at Boston, which compares with 1547 tons for the first half of October and 5393 tons for the first half of November, 1925. The Mystic Iron Works, during the first half of November, received 9897 tons of Newfoundland ore. In October it received 9902 tons from Newfoundland.

Shapes and Plates.—The Phoenix Bridge Co., Boston, will fabricate and erect 2000 tons of steel for three bridges at Cottage Farm between Boston and Cambridge, Mass. This contract is one of the largest placed in New England this fall and means an expenditure of approximately $250,000. Several other round tonnages of steel also were awarded in the past week. Competition for business among fabricators is keen, and some very low prices are being made. The market for standard shapes is firm at 2c. a lb., base Pittsburgh, and plates remain at 1.90c.

Coke.—Specifications against last half contracts for by-product foundry coke have fallen off noticeably the past week, presumably because of developments in the British coal strike situation. In contrast, the demand for domestic coke is increasing; consequently the movement of fuel from ovens is actually larger than heretofore. The New England Coal & Coke Co. and the Providence Gas Co. quote foundry coke at $13 a ton, delivered, within a $3.10 freight rate zone.

Old Material.—Little change in the market is reported. Current business is of small proportions and largely confined to heavy melting steel, borings, turnings and skeleton. Prices are virtually unchanged, with $11 a ton on cars the extreme top on heavy melting steel. Shippers are getting rejections on heavy melting steel owing to the introduction of automobile steel in consignments. New England steel mills, according to report, will be in the market shortly for material. Foundries are still supplying their machinery cast requirements from local or nearby yards; consequently the Boston market remains quiet.

The following prices are for gross ton lots delivered consuming points:

Textile cast	$18.50 to $19.00
No. 1 machinery cast	18.00 to 18.50
No. 2 machinery cast	16.50 to 17.00
Stove plate	14.00 to 14.50
Railroad malleable	19.50 to 20.00

The following prices are offered per gross-ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$10.50 to $11.00
No. 1 railroad wrought	11.50 to 12.00
No. 1 yard wrought	10.50 to 11.00
Wrought pipe (1 in. in diameter, over 2 ft. long)	9.00 to 9.50
Machine shop turnings	8.00 to 8.50
Cast iron borings, chemical	10.50 to 11.00
Cast iron borings, rolling mill	8.00 to 8.50
Blast furnace borings and turnings	8.00 to 8.50
Forge scrap	8.50 to 9.00
Bundled skeleton, long	8.00 to 8.50
Forged flashings	8.50 to 9.00
Bundled cotton ties, long	8.00 to 8.50
Bundled cotton ties, short	8.50 to 9.00
Shafting	16.00 to 16.50
Street car axles	17.50 to 18.50
Rails for rerolling	11.50 to 12.00
Scrap rails	10.50 to 11.00

Warehouse Prices, f.o.b. Boston

	Base per Lb.
Soft steel bars and small shapes	3.265c.
Flats, hot-rolled	4.15c.
Reinforcing bars	3.265c. to 3.54c.
Iron bars—	
Refined	3.265c.
Best refined	4.60c.
Norway, rounds	6.60c.
Norway, squares and flats	7.10c.
Structural shapes—	
Angles and beams	3.365c.
Tees	3.365c.
Zees	3.465c.
Plates	3.365c.
Spring Steel—	
Open-hearth	5.00c. to 10.00c.
Crucible	12.00c.
Tire steel	4.50c. to 4.75c.
Bands	4.015c. to 5.00c.
Hoop steel	5.50c. to 6.00c.
Cold rolled steel—	
Rounds and hexagons	4.05c.
Squares and flats	4.55c.
Toe calk steel	6.00c.

Canadian Output of Pig Iron and Steel Gains

TORONTO, ONT., Nov. 23.—During October the production of pig iron in Canada rose to 70,124 gross tons, an increase of 9 per cent over the September total, which in turn was 9 per cent higher than that of August. In October, 1925, the production of pig iron amounted to 74,013 gross tons, which was the highest monthly record of that year. In the month under review output consisted of 46,119 tons of basic iron, 23,051 tons of foundry iron and 954 tons of malleable iron. All of the malleable iron, 4483 tons of basic and 22,746 tons of foundry iron were made for sale, the remainder being for the further use of producing firms.

For the 10 months ended with October the cumulative production of pig iron totaled 631,187 gross tons, as compared with 446,973 gross tons for the corresponding period in 1925.

The production of ferroalloys rose to 3559 tons in October, an increase of 15 per cent over the 3083 tons for September. Most of the output was ferromanganese, but there was also a small production of ferrosilicon.

The production of steel ingots and castings in October amounted to 65,542 gross tons, marking a gain of 8 per cent over the output of 58,837 gross tons reported for the previous month. For the first 10 months the cumulative production of steel ingots and castings in Canada was 664,084 gross tons, this being an increase of 8 per cent over the 617,317 gross tons reported for the corresponding period in 1925.

NON-FERROUS METAL MARKETS

The Week's Prices

Cents per Pound for Early Delivery

	Nov. 23	Nov. 22	Nov. 20	Nov. 19	Nov. 18	Nov. 17
Lake copper, New York	13.87½	13.87½	14.00	14.00	14.00	14.00
Electrolytic copper, N. Y.*	13.50	13.55	13.57½	13.62½	13.62½	13.62½
Straits tin, spot, New York	72.50	71.50	....	70.62½	70.87½	71.50
Lead, New York	8.00	8.00	8.00	8.00	8.00	8.00
Lead, St. Louis	7.80	7.80	7.80	7.80	7.80	7.80
Zinc, New York	7.52½	7.55	7.55	7.57½	7.60	7.60
Zinc, St. Louis	7.17½	7.20	7.20	7.22½	7.25	7.25

*Refinery quotation; delivered price ¼c. higher.

NEW YORK, Nov. 23.—Weakness has again developed in copper and prices are lower. On active buying tin has soared to the highest price of the year. The lead market is quiet and firm. Prices of zinc have slowly declined and the market is inactive.

Copper.—Consumers of copper are buying gingerly and their needs seem to be slackening, it being reported that orders for finished material are not entirely satisfactory. Sales have been small during the week and prices have gradually declined until electrolytic copper is quoted today at 13.75c., delivered, or 13.50c., refinery. Lake copper has also declined and is quoted at 13.87½c., delivered. A feature of the weaker market is the lowering of the official quotation of Copper Exporters, Inc. This took place yesterday and the price was reduced from 14.27½c. to 14.12½c., c.i.f. Hamburg. In general it is stated that export demand has been better than domestic.

Tin.—A record price for Straits tin since 1919 was made today when the metal advanced to 72.50c., spot delivery, New York. This, however, was largely nominal as the metal for that position is very scarce. The shortage also extends into November and the first half of December, and it is predicted that the market will be tight until the end of the year. Sales for the week ended Friday are estimated at about 1400 tons, although the market was quiet on the surface. It develops that there was good buying on Nov. 15 with consumers liberal takers of about 500 tons. Yesterday, Monday, the market was again active, dealers being the principal takers of about 200 tons, with interest centered in the December position. Quotations in London were higher today than a week ago with spot standard quoted at £316 10s., future standard at £302 10s., and spot Straits £325 10s. The Singapore price was £310. A feature of the general market is the more or less persistent buying by consumers at the higher prices. Arrivals thus far this month have been 5155 tons, with 4840 tons reported afloat.

Lead.—In a quiet market prices have been firm and buying has been fairly satisfactory, especially for December. The leading interest continues to maintain its contract price at 8c., New York. The outside market is 7.80c. to 7.85c., St. Louis.

Zinc.—Weakness has developed and prices are lower. Prime Western zinc for early delivery has declined to 7.17½c. to 7.20c., St. Louis, or 7.52½c. to 7.55c., New York. Buying by galvanizers has fallen off and sales during the past week have been very moderate. It is rumored that 7.15c., St. Louis, could be done, but confirmation has been impossible.

Antimony.—The market is stronger and Chinese metal for spot delivery is quoted at 14.25c., New York, duty paid, with future shipments, December-January arrivals, at 14c. to 14.50c., New York.

Nickel.—Ingot nickel in wholesale lots is quoted at 35c., with shot nickel at 36c. and electrolytic nickel at 39c. per lb.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. per lb., delivered.

Non-Ferrous Metals at Chicago

Nov. 23.—The price of tin is advanced and the market is spotty with sales largely for immediate delivery. A growing surplus of antimony has resulted in a lower price of that commodity. Sales of copper are steady

Metals from New York Warehouse

Delivered Prices per Lb.

Tin, Straits pig	72.50c to 73.00c.
Tin, bar	73.00c. to 73.50c.
Copper, Lake	15.00c.
Copper, electrolytic	14.75c.
Copper, casting	14.25c.
Zinc, slab	8.00c. to 8.50c.
Lead, American pig	8.75c. to 9.25c.
Lead, bar	11.25c. to 12.25c.
Antimony, Asiatic	14.50c. to 15.50c.
Aluminum, No. 1 ingot for remelting (guaranteed over 99 per cent pure)	30.00c. to 30.50c.
Babbitt metal, commercial grade	30.00c. to 40.00c.
Solder, ½ and ½	43.50c. to 44.00c.

Metals from Cleveland Warehouse

Delivered Prices per Lb.

Tin, Straits pig	75.50c.
Tin, bar	77.50c.
Copper, Lake	15.00c.
Copper, electrolytic	15.00c.
Copper, casting	14.00c.
Zinc, slab	8.50c.
Lead, American pig	8.75c.
Antimony, Asiatic	18.50c.
Lead, bar	10.75c.
Babbitt metal, medium grade	21.75c.
Babbitt metal, high grade	80.25c.
Solder, ½ and ½	44.00c.

Rolled Metals from New York or Cleveland Warehouse

Delivered Prices, Base per Lb.

Sheets—	
High brass	18.87½c. to 19.87½c.
Copper, hot rolled	22.50c. to 23.50c.
Copper, cold rolled, 14 oz. and heavier	24.75c. to 25.75c.
Seamless Tubes—	
Brass	23.75c. to 24.75c.
Copper	24.50c. to 25.50c.
Brazed Brass Tubes	26.87½c. to 27.87½c.
Brass Rods	16.62½c. to 17.62½c.

From New York Warehouse

Delivered Prices, Base per Lb.

Zinc sheets (No. 9), casks	13.00c. to 13.25c.
Zinc sheets, open	13.50c. to 13.75c.

Non-Ferrous Rolled Products

Mill prices on bronze, brass and copper products and on lead full sheets are still being quoted at the reductions of Oct. 27 and Nov. 4 respectively. Zinc sheets have not changed since July 20.

On Copper and Brass Products, Freight up to 75c. Per 100 Lb. Allowed on Shipments of 500 Lb. or Over

Sheets—	
High brass	18.87½c.
Copper, hot rolled	22.50c.
Zinc	11.75c.
Lead (full sheets)	11.75c. to 12.00c.
Seamless Tubes—	
High brass	23.75c.
Copper	24.50c.
Rods—	
High brass	16.62½c.
Naval brass	19.37½c.
Wire—	
Copper	15.87½c.
High brass	19.37½c.
Copper in Rolls	21.37½c.
Brazed Brass Tubing	26.87½c.

Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of the Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 2 to 30 in. wide	37.50c.
Tubes, base	48.00c.
Machine rods	34.00c.

Rolled Metals, f.o.b. Chicago Warehouse

(Prices Cover Trucking to Customers' Doors in City Limits)

Sheets—	Base per Lb.
High brass	18⅞c.
Copper, hot rolled	22.50c.
Copper, cold rolled, 14 oz. and heavier	24.75c.
Zinc	12.25c.
Lead, wide	11.25c.
Seamless Tubes—	
Brass	23.75c.
Copper	24.50c.
Brazed Brass Tubes	26⅞c.
Brass Rods	16⅝c.

and the price is holding. Old metals are in small demand and the price tendency is downward. We quote, in carload lots, Lake copper, 14.12½c.; tin, 72c.; lead, 7.90c.; zinc, 7.30c.; in less than carload lots, antimony, 14.50c. On old metals we quote copper wire, crucible shapes and copper clips, 10.75c.; copper bottoms, 9.50c.; red brass, 9.25c.; yellow brass, 7.50c.; lead pipe, 6.75c.; zinc, 4.75c.; pewter, No. 1, 35c.; tin foil, 43.50c.; block tin, 52c.; aluminum, 16.75c.; all being dealers' prices for less than carload lots.

REINFORCING STEEL

Awards of Nearly 11,000 Tons Include 3750 Tons for Illinois Sewage Plant

Reinforcing steel awards in the week, as reported to THE IRON AGE, totaled nearly 11,000 tons, including 3750 tons for a sewage treating plant at Stickney, Ill., but also including three other jobs of 1000 tons or more. New inquiries total less than 2000 tons. Awards follow:

SOMERVILLE, MASS., 1400 tons, First National Stores plant, to Concrete Steel Co.

NEW YORK, 1000 tons, Nash service station, 133rd Street and Broadway, to Jones & Laughlin Steel Corporation.

PERTH AMBOY, N. J., 100 tons, bridge for Central Railroad of New Jersey, to Concrete Steel Co.

NEWARK, 1000 tons, Lincoln Highway viaduct, reported to go to Igoe Brothers.

ROCHESTER, MICH., 200 tons, highway bridge to Joseph T. Ryerson & Son.

CINCINNATI, 200 tons, building for the Ault & Wiborg Co., to Pollak Steel Co.

DECATUR, ILL., 250 tons, city waterworks, to Mississippi Valley Structural Steel Co.

CHICAGO, 140 tons, Mather Building, to Jones & Laughlin Steel Corporation.

CHICAGO, 200 tons of rail steel, apartment building at 2136 Lincoln Park West, to Calumet Steel Co.

CHICAGO, 110 tons of rail steel, apartment building at 5633 Kenmore Avenue, to Calumet Steel Co.

CHICAGO, 100 tons of rail steel, Canterbury Apartment, to Calumet Steel Co.

STICKNEY, ILL., 3750 tons, Sanitary District sewage treating plant, let by the general contractor, T. J. Forschner Construction Co., to an unnamed dealer.

MILWAUKEE, tonnage not stated, Schroeder Hotel, to Joseph T. Ryerson & Son.

MILWAUKEE, 750 tons, school, to Kalman Steel Co.

MILWAUKEE, 100 tons, St. Thomas School, to Concrete Engineering Co.

DAVENPORT, IOWA, 110 tons, building for the Campbell Baking Co., to Concrete Engineering Co.

ST. LOUIS, 100 tons, Chevrolet Motor Car Co. service and parts building, to Truscon Steel Co.

ST. LOUIS, 300 tons, stadium for high school, St. Louis Board of Education, to Laclede Steel Co.

FRESNO, CAL., 130 tons, Edison Technical School, to Kyle & Co., Fresno.

OAKLAND, CAL., 400 tons, Grove Street Pier, to an unnamed San Francisco jobber.

SAN FRANCISCO, 200 tons, building for St. Ignatius College, to W. S. Wetenhall Co., San Francisco.

SAN FRANCISCO, 200 tons, warehouse for the United Cigar Stores, Inc., Fifth and Bryant Streets, to Gunn, Carle & Co., San Francisco.

SAN FRANCISCO, 100 tons, for unnamed interests, to Gunn, Carle & Co.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

ASHTABULA, OHIO, 650 tons, highway bridge.

Old Metals, Per Pound, New York

The buying prices represent what large dealers are paying for miscellaneous lots from the smaller accumulators, and the selling prices are those charged consumers after the metal has been properly prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, heavy crucible	11.50c.	13.00c.
Copper, heavy and wire	11.25c.	12.00c.
Copper, light and bottoms	9.50c.	10.75c.
Brass, heavy	7.00c.	8.50c.
Brass, light	6.25c.	7.75c.
Heavy machine composition	9.00c.	10.25c.
No. 1 yellow brass turnings	8.50c.	9.00c.
No. 1 red brass or composition turnings	8.25c.	9.00c.
Lead, heavy	6.50c.	7.00c.
Lead, tea	4.75c.	5.50c.
Zinc	4.25c.	4.75c.
Sheet aluminum	16.50c.	18.50c.
Cast aluminum	16.50c.	18.50c.

SEATTLE, WASH., 200 tons, for Chesty Building, Second and Pike Streets.

ELLENSBURGH, WASH., 955 tons, for the United States Bureau of Reclamation, for construction of the Kittitas main canal, division No. 2; bids Dec. 28.

OAKLAND, CAL., 100 tons, Finance Building, W. S. Wetenhall Co. low bidder.

Valley Mould Company to Move to Hubbard, Ohio

YOUNGSTOWN, Nov. 23.—The Valley Mould & Iron Corporation, a leading maker of ingot molds, announced today that it will build a new plant at Hubbard, Ohio, on a 15-acre tract leased from the Youngstown Sheet & Tube Co. and adjoining that company's two Hubbard blast furnaces. The Valley Mould company will abandon its plant at Sharpsville, Pa., upon the completion of its new property, scheduled for mid-year, 1927. At the same time the Sheet & Tube company will spend about $500,000 in improving its Hubbard stacks and later enlarging their capacity from 22,000 to 28,000 tons per month. The immediate improvements include an increase in boiler capacity and extension of the electric plant, to furnish power for the Valley Mould company's unit. The Valley Mould company has contracted to take its iron supply from the Sheet & Tube company, which in turn has arranged for its ingot mold requirements from the former interest.

Detroit Scrap Market Dull

DETROIT, Nov. 23.—There has been no change in scrap prices during the past two weeks except on long turnings, which registered a decline of 25c. per ton. Old orders are sufficient to take care of material being released, but there has been no buying of sizable tonnages during this period. Automotive production is on a very low basis, with the general prediction that it will not be increased materially until the latter part of January.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate. No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	$12.50 to $13.00
Borings and short turnings	9.00 to 9.50
Long turnings	8.00 to 8.50
No. 1 machinery cast	17.00 to 18.00
Automobile cast	20.50 to 21.50
Hydraulic compressed	11.75 to 12.25
Stove plate	13.50 to 14.50
No. 1 busheling	11.00 to 11.50
Sheet clippings	7.75 to 8.25
Flashings	10.75 to 11.25

Receiver Named for F. R. Phillips & Sons Co.

The Federal District Court in Philadelphia has appointed Harry J. Ebrey temporary receiver of F. R. Phillips & Sons Co., Pennsylvania Building, Philadelphia, importer and exporter of steel. Application for the receivership was made by W. Vernon Phillips, president of the company.

PERSONAL

Francis B. Foley, since 1924 metallurgist Lucey Mfg. Corporation, Chattanooga, Tenn., has been made superintendent of the research department of the Midvale Co., Nicetown, Philadelphia. Following his graduation from Girard College, Philadelphia, in 1904, Mr. Foley was employed by the Midvale Co. until 1917, when he served for a year as assistant professor of metallurgy at the University of Minnesota. During this time he was engaged in the investigation of production of ferromanganese in the blast furnace as a part of the War Materials Investigation. He also studied and wrote on the "flake" phenomenon in gun steel during the war. At the close of the war he was made a metallurgist for the Bureau of Mines, serving in that capacity until his connection with the Lucey company in 1924. He collaborated with the late Henry M. Howe in an investigation of the effect of variations in heating and cooling on the physical properties of carbon steel, and carried on an extensive survey of the treatment and handling of drill steel. He continues as a consulting metallurgist for the Bureau of Mines, and is a member of several committees of the National Research Council, of the iron and steel committee of the American Institute of Mining and Metallurgical Engineers, of the American Society for Testing Materials, of the American Petroleum Institute and of the American Iron and Steel Institute.

FRANCIS B. FOLEY

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George C. Mills has become associated with the Vulcan Mold & Iron Co., Latrobe, Pa., as sales representative. He has been active in the sale of iron, steel and alloys for the past 25 years, for a considerable time with Naylor & Co., Inc., New York, and more recently as a sales agent in the Pittsburgh district for steel industry raw material companies and the Vom Baur Engineering Corporation, New York.

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John N. Brenza, formerly associated with the Aluminum Co. of America, has been added to the Cleveland sales organization of the Fairmont Mfg. Co., Fairmont, W. Va., with offices at 1267 East 124th Street, Cleveland. George L. Nankervis has been added to the Detroit sales force of the same company with headquarters in the General Motors Building. Mr. Nankervis was formerly Detroit district representative of the Baltimore Copper & Brass Rolling Mills, Baltimore, and at one time purchasing agent for the Hudson Motor Car Co., Detroit.

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Joseph B. Perbell, president American Brake Shoe & Foundry Co., New York, has been elected a director of the Guaranty Trust Co.

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Harold Barlow has been appointed manager of the New York branch of the Halcomb Steel Co., Syracuse, N. Y., which is located at Dominick and Clark Streets. Frank W. Ross has been made special representative for the same company at its New York branch.

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E. H. Schwab, brother of Charles M. Schwab, has been elected president of the Splitdorf Electrical Co., Newark, N. J., to succeed M. W. Bartlett, who is retiring. Mr. Schwab has been chairman of the board since 1924, when the Splitdorf interests were merged with the Bethlehem Spark Plug Co.

Anson W. Richards has joined the staff of the Simmons Machine Tool Corporation, Albany, N. Y. He has been in the machine tool business for more than 30 years, previously having been associated with Manning, Maxwell & Moore, Henry Prentiss Co. and Van Dyke Churchill Co., all of New York.

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B. F. Bart, until recently Los Angeles district sales manager for the A. O. Smith Corporation, Milwaukee, has been appointed assistant sales manager of the company's oil field division with headquarters in Milwaukee. Following his graduation in metallurgy from Pennsylvania State College, Mr. Bart was employed in various departments of the National Tube Co. Immediately preceding his connection with the Smith corporation he was New York district manager for the Standard Seamless Tube Co., Pittsburgh.

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John A. Oartel, safety director Carnegie Steel Co., Pittsburgh, recently was reelected president of the Safety Council of Western Pennsylvania.

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Edward A. Livingstone has been placed in charge of the Los Angeles office of the A. O. Smith Corporation, Milwaukee, to succeed B. F. Bart.

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E. Kent Swift, treasurer Whitin Machine Co., Whitinsville, Mass., last week was elected president of the Home Market Club, Boston, for the third consecutive year.

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Arthur H. Jones, for several years Seattle representative for the Worth Steel Co., Claymont, Del., has resigned, and in the future the company will be represented in the Seattle territory by the Seattle Hardware Co.

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John F. Hazen, formerly general manager of sales of the Pittsburgh Steel Co., has joined the sales department of the Bethlehem Steel Co., with headquarters at Bethlehem, Pa., specializing in wire products. Mr. Hazen started in the iron and steel business in 1897. He entered the sales department of the Pittsburgh Steel Co. in 1902 and since that time his activities have been devoted particularly to the sale of nails and wire products.

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Arthur Jackson, of the Arthur Jackson Machine Tools, Toronto and Montreal, will sail from New York on Dec. 22 for a vacation in Bermuda.

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E. B. Langenberg, vice-president Langenberg Mfg. Co., president of the St. Louis Chapter of the American Society of Heating and Ventilating Engineers, and president of the National Warm Air Heating Association, has been made vice-chairman of the Citizens' Smoke Abatement League of St. Louis.

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H. Malcolm Fick, who was in the Waverly, N. J., and New York offices of the Carnegie Steel Co. for about 10 years and more recently with Edgar T. Ward's Sons Co., Newark, N. J., has joined the steel department of B. Nicoll & Co., importer, 292 Madison Avenue, New York. Lately Mr. Fick has been connected with the industrial division of the Guaranty Trust Co. of New York.

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Vernon C. Ward has been named manager of sales, steel construction department, Jones & Laughlin Steel Corporation, Pittsburgh.

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Burton L. Delack, assistant manager of the Erie, Pa., works, General Electric Co., has been appointed assistant manager of the Schenectady, N. Y., works, effective Dec. 1. At the same time John St. Lawrence, general superintendent at Erie, has been named to succeed Mr. Delack there.

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Walter D. Briggs has resumed his former position as salesman in the Syracuse office of Crane-Schiefer-Owens, Inc., after an indefinite leave of absence on account of illness in his family.

Charles A. Moffett has resigned as president of the Gulf States Steel Co., Birmingham, and has been appointed chairman of the Alabama State Board of Control and Economy under the new gubernatorial administration. He has been associated with the Southern Iron & Steel Co. and its successor, the Gulf States company, since 1909, having become president in 1921. In 1904, after varied connections in machinery building plants, he became a member of the firm of Moffett & Bonholzer, founders and machinists, Birmingham, and for four years was chief engineer of the Republic Iron & Steel Co. at Thomas, Ala. Leslie Geohegan, who has been connected with the operating division of the company for more than 17 years, has been made vice-president in charge of operations.

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John L. Hilton has been appointed engineer in charge of production and sales promotion for the Commercial Shearing & Stamping Co., Youngstown.

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Harry H. R. Spofford has been elected secretary of the Copper and Brass Research Association. He was formerly mechanical engineer for the organization.

George H. Cressler, general sales manager Stacey Mfg. Co., Cincinnati, has been transferred to the company's New York office.

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Glenn W. Christopher, for the past three years Pittsburgh district manager of sales Youngstown Sheet & Tube Co., has been transferred to Youngstown and made manager of bar and wire sales. He has been associated with the Youngstown company in a sales capacity since 1911, having been in the general sales department at Youngstown for a number of years before his transfer to the Chicago district sales office, which he left to assume charge of sales in Pittsburgh, Sept. 1, 1923. His successor in the Pittsburgh office is Arthur Purnell, who has been Boston district sales manager, and he, in turn, will be succeeded by Frederick Egglestone, formerly Atlanta district sales manager. The changes become effective Dec. 15.

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Charles P. Perin, Perin & Marshall, New York, has arrived in Bombay for a stay in India. Frank L. Estep, of the firm, reaches New York this week after an extended absence in Europe.

OBITUARY

WILLIAM M. PATTISON, president of the W. M. Pattison Supply Co., Cleveland, died Nov. 16 from the effects of a paralytic stroke that forced him to retire from active business four months ago. He was 68 years of age. Mr. Pattison was one of the organizers of the National Supply & Machinery Dealers Association and served two years as president of that organization, being first elected in 1909. He was also one of the organizers of the National Association of Jobbers of Wrought Pipe and Fittings, which later became the National Pipe and Supplies Association, and was president of that organization in 1913 and 1914. Starting as an office boy with the George Worthington Co., Cleveland, wholesale hardware dealer, he worked his way to a directorship of that company. He had been connected with it for 18 years and was at the head of the mill supply department when he resigned in 1897 to organize the W. M. Pattison Supply Co. He has served as president of both the Cleveland Association of Credit Men and the National Association of Credit Men. He was a director of the Ohio Body Corporation, the Swartwout Co. and the Guardian Trust Co., all of Cleveland. He was also a director of the Cleveland Chamber of Commerce.

WILLIAM M. PATTISON

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THOMAS H. MIRKIL, JR., Philadelphia district sales manager for the Treadwell Engineering Co., Easton, Pa., died on Nov. 12.

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CHARLES S. COOK, vice-president and treasurer Kaestner & Hecht Elevator Co., Chicago, died in Pittsburgh, Nov. 15. He was formerly associated with the Westinghouse Electric & Mfg. Co. and the Duquesne Light Co., Pittsburgh, and had been identified with the electrical manufacturing industry for almost 40 years. He was a native of Amherst, Mass., and a graduate of Worcester Polytechnic Institute. From 1899 to 1904 he was manager of the Westinghouse Pittsburgh office and for 13 years was manager of the railway and lighting department at East Pittsburgh.

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G. A. SACCHI, manager stoker sales department, Westinghouse Electric & Mfg. Co., East Pittsburgh, died Nov. 4 at his home in Lansdowne, Pa. He had been identified with the Westinghouse company since 1893 when he entered the employ of Westinghouse, Church, Kerr & Co. Last April he was elected president of the Stoker Manufacturers' Association.

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ALLAN JOHNSTON GOODHUE, until his retirement in 1919 Western sales manager for the United States Cast Iron & Foundry Co., died Nov. 17 at his home in Hinsdale, Ill. He was born in Akron, Ohio, on July 18, 1844, and, following three years' service in the Union army during the Civil War, entered the banking business in Akron. He went to Rochester, N. Y., in 1870, and was engaged for seven years in the shoe manufacturing industry. Subsequently he again entered banking, this time in North Dakota, where he remained four years. Entering the cast iron pipe business with the Lake Shore Foundry, Cleveland, he was general sales manager for 14 years, and when that company was merged with the United States Cast Iron Pipe & Foundry Co. he was made Western sales manager with headquarters in Chicago. Since his retirement he had continued to act in an advisory capacity to the company's Western sales organization.

ALLAN J. GOODHUE

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THOMAS J. NEACY, president Beaver Mfg. Co., Milwaukee, maker of gasoline engines, and formerly president of the Filer & Stowell Co., Milwaukee, died Nov. 18 aged 78 years. He was born in Ireland and came to America in 1866, learning the machinist trade. In 1871 he entered the employ of the Cream City Iron Works, Milwaukee. The business was incorporated as the Filer & Stowell Co. in 1880, and two years later Mr. Neacy, with the late Walter Read, acquired an in-

terest. In 1893 Messrs. Neacy and Read took over the entire ownership. Mr. Neacy disposed of his interests in 1920 and since then had devoted his entire time to the Beaver Mfg. Co.

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MORSE GALAMBA, of the Sonken-Galamba Corporation, Kansas City, Kan., salvager and dealer in old material, died recently at his home in Kansas City, Mo.

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JAMES FURMAN KEMP, since 1891 professor of geology at Columbia University and a past president of the American Institute of Mining and Metallurgical Engineers, died Nov. 17 at his home at Great Neck, L. I. He was born in 1859, and was graduated from Amherst College in 1881. After receiving his master's degree from Columbia in 1884, he studied for a time in Germany, and was a member of the faculty of Cornell University for five years before coming to Columbia. He was formerly a member of the United States and New York State geological surveys, and was widely consulted on mining problems and matters of industrial geology. He had engaged in geological explorations in the West Indies, South America and the Orient, and was widely known in Europe through his research in connection with the iron deposits of Norway and Sweden. He was an honorary member as well as a past president of the A. I. M. & M. E., and was also a former president of both the Geological Society of America and the New York Academy of Science.

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ELTON B. HULL, manager of furnaces and coke ovens for Pickands, Mather & Co., Cleveland, died suddenly at his home in that city Nov. 22, aged 54 years. He was born near Sharon, Pa., and left school when a boy to work in the laboratory of one of the Valley furnaces. Later he was made superintendent of the blast furnace of the Maryland Steel Co., Sparrows Point, Md., and then held the same position for the Ashland Iron & Mining Co., Ashland, Ky. About 1902 he went with Pickands, Mather & Co. as general superintendent of the two Valley furnaces they then operated. About 1907 he was transferred to Toledo, Ohio, as general superintendent of furnaces for the Toledo Furnace Co. He remained there until 1921 when he was transferred to Cleveland and made general manager of all the company's furnaces and coke ovens. He was a member of the American Iron and Steel Institute.

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DOUGLAS H. THOMSON, president Terry Steam Turbine Co., Hartford, Conn., was killed in an automobile accident at Warehouse Point, Conn., on Nov. 21. He was graduated in 1908 from the Sheffield Scientific School of Yale University, and immediately became associated with the Terry company. He was also a member of the firm of Thomson, Fenn & Co., investment brokers of Hartford.

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LEE J. NEWMAN, president Ohio Iron & Metal Co., Chicago and Cleveland, died Nov. 22. He was born in Cleveland in 1885. He received his education in the public schools of that city and in 1906 he became associated with the company of which he was later made president. He was widely known throughout the scrap metal trade and had many close friends in the steel industry. Much of his spare time was devoted to civic problems.

Progress Reported in Study of German Dumping

WASHINGTON, Nov. 23.—The anti-dumping section of the Treasury Department has completed its study regarding alleged dumping of pig iron into the United States from Germany. It still is engaged in the study regarding the charge that steel has been dumped into the United States from that country.

STEEL SHEETS IN OCTOBER

Shipments Sustained, Sales Off and Unfilled Orders Reduced

The monthly report of the National Association of Sheet and Tin Plate Manufacturers for October, disclosed sustained shipments as compared with the previous month, a slight increase in production but a rather steep descent in sales and unfilled orders. The apparent decrease in the latter item for October (the difference between sales and shipments), was 89,445 tons. The reported decrease is 149,984, indicating rather substantial cancellations. The October figures in detail with comparison follow:

Comparative Features of Sheet Trade

	1926			1925
	Oct.	Sept.	Aug.	Oct.
Number of mills	710	710	710	709
Capacity per month	420,300	432,650	432,650	437,000
Per cent reporting	73.8	73.8	73.8	74.8
Sales	212,029	448,147	283,055	403,491
Production	314,598	307,459	293,703	348,714
Shipments	301,474	302,198	281,602	332,211
Unfilled orders	581,993	731,977	521,837	595,583
Unshipped stocks	100,448	99,911	102,874	83,244
Unsold stocks	40,758	34,511	44,988	40,200
Percentages of Capacity				
Sales	68.3	140.3	88.6	127.3
Production	101.4	96.2	92.0	106.4
Shipments	97.2	94.3	88.2	104.8
Unfilled orders	187.6	229.2	163.4	187.9
Unshipped stocks	32.2	31.3	32.2	25.4
Unsold stocks	13.1	10.8	14.1	12.3

Structural Steel Bookings Lower Than Last Year, Shipments Higher

WASHINGTON, Nov. 20.—Fabricated structural steel bookings in October totaled 171,229 tons, as reported to the Department of Commerce by 170 firms with a capacity of 256,730 tons, and represented 67 per cent of capacity. This compares with 161,944 tons, or 60 per cent of the capacity of 190 firms with a capacity of 267,930 tons, reporting in September. Computed bookings in October amounted to 204,350 tons, against 183,000 tons in September. October shipments were the same as September shipments in computed tonnage, being 253,150 tons, or 83 per cent of capacity.

For the 10 months ended with October, computed bookings aggregated 2,107,550 tons, compared with 2,263,100 tons for the corresponding period of 1925 and 1,954,310 tons for the 10-month period in 1924. Computed shipments for the 10 months ended with October, 1926, totaled 2,424,750 tons, against 2,287,500 tons and 2,065,650 tons for corresponding periods of 1925 and 1924, respectively.

Organize Committee on Safety Code for Cranes, Derricks and Hoists

At a meeting of the sectional committee on safety code for cranes, derricks and hoists, held at the Engineering Societies Building, New York, Nov. 4, an executive committee was appointed to consider the scope and personnel of a number of subcommittees. The subcommittees were designated as follows: overhead and gantry cranes; locomotive and tractor cranes; derricks; hoists; slings; chains and hooks; wire rope and attachments, and sheaves and pulleys.

The sectional committee is sponsored by the American Society of Mechanical Engineers under the procedure of the American Engineering Standards Committee. Among those present was Dr. L. W. Chaney, Bureau of Labor Statistics, Washington; A. H. McDougall, Whiting Corporation, Harvey, Ill., J. C. Wheat, Industrial Works, Bay City, Mich; J. W. Pollock, Baldwin Locomotive Works, Philadelphia; L. F. Mitten, Vulcan Iron Works, Wilkes-Barre, Pa.; H. H. Vernon and C. B. Bradish, General Electric Co., Schenectady; C. B. Auel, Westinghouse Electric & Mfg. Co., East Pittsburgh; J. H. Street, president of the Street Brothers Machine Works, Chattanooga, Tenn.; B. F. Tillson, New Jersey Zinc Co., Franklin, N. J.; P. G. Agnew, secretary of the American Engineering Standards Committee, and C. B. LePage, assistant secretary of the A. S. M. E. standardization and technical committees.

SETH BOYDEN MEMORIAL

Newark Citizens Unveil Tablet Commemorating Achievements of Malleable Iron Discoverer

THE 138th anniversary of the birth of Seth Boyden, discoverer of malleable iron and one of the country's foremost inventors, was observed on Nov. 17 with the unveiling of the Boyden monument in Washington Park, Newark, of a bronze tablet enumerating his outstanding achievements. The tablet replaces a less complete predecessor, which was stolen from the monument prior to 1913, and is a gift of representative industrial and civic interests of Seth Boyden's home city.

"Seth Boyden's unusual inquisitiveness as to why and how, added to an untiring desire to make things of some use to people, produced a genius whom we call an inventor; his reasoning power, combined with a gift for observation, evolved a man we term a philosopher, and his untiring industry with his hands, guided by an active brain, left an inspiring example for us all to follow," said Arthur E. Barlow, secretary-treasurer of the Barlow Foundry, Inc., Newark, in presenting the tablet to the city. The flag which covered it was drawn aside by young Norman Crawford, great-great-grandson of the inventor.

Born at Foxborough, Mass., Seth Boyden showed unusual inventive traits as a boy, and at 18 he had painted a miniature of himself on ivory and engraved a portrait of Washington. In 1810 he constructed a machine to make wrought iron nails, another to make brads and files, and shortly afterward another to cut and head tacks. In 1815 he came to Newark and opened up a harness shop on Broad Street, where he put into use a machine he had devised to split hides.

In 1819 he discovered the process for making patent leather, and in the same year moved his shop to Bridge Street, where he began to experiment with the making of iron castings. In 1826 he definitely discovered the process for making malleable castings. Two years later he was awarded a premium by the Franklin Institute of Philadelphia for exhibiting "annealed cast iron articles of remarkable beauty and smoothness." A few years later he sold both his patent leather factory and malleable iron foundry, and experimented in the building of locomotives, building a number of the early engines operated by New Jersey and Pennsylvania railroads. In 1848 he discovered an economical process for the smelting of zinc ores. Two years later he developed an inexpensive process for the manufacture of Russian sheet iron. Moving to Hilton, N. J., a few years later, he developed several varieties of the now famous Hilton strawberries. At the time of his death in 1870 he was experimenting with atmospheric electricity.

Others besides Arthur E. Barlow who were members of the committee which made the new tablet possible were Frederick L. Eberhardt, president Gould & Eberhardt, Inc., Newark; Stephen J. Miller, secretary and general manager Merker Foundry Co., Newark, and Theodore S. Miller, leather manufacturer, Newark.

Wallace Company Announces Changes

The name of the Wallace Equipment Co., Seattle, Wash., has been changed to the Wallace Bridge & Structural Steel Co., to indicate more specifically the nature of the firm's business. The capital stock of the company has been increased from $150,000 to $450,000. The officers of the reorganized company are as follows: J. F. Duthie, president; William Edris, vice-president; G. W. Klinefelter, Jr., secretary and treasurer; W. J. Duthie, manager of steel construction, and A. C. Nation, engineer. A new fabricating plant is now being constructed on 13 acres of ground at West Marginal Way and West Idaho Street, Seattle, in close proximity to the industrial and wholesale district. The capacity of the plant will be 2000 tons per month. In addition the company will carry a large stock of structural steel for jobbing purposes.

Whitman Barnes-Detroit Corporation Announces Plans and Personnel

Officers and directors of the Whitman Barnes-Detroit Corporation, formed Sept. 1 as a result of a merger of the Whitman & Barnes Mfg. Co., Akron, Ohio, and the Detroit Twist Drill Co., Detroit, have been announced by William H. Eager, formerly president of the Whitman & Barnes Company, who is president of the new corporation. Muir B. Snow, formerly president of the Detroit Twist Drill Co., is vice-president, and Karl Kendig, formerly secretary and assistant treasurer of the Whitman & Barnes organization, is secretary and treasurer. In addition to these, other directors are A. H. Commins, of Commins, Brouse, Englebeck & MacDowell, Akron; W. J. O'Neill, vice-president Union Trust Co., Cleveland; A. D. Armitage, chairman of the board J. H. Williams Co., Buffalo; C. H. Hecker, vice-president Detroit Lumber Co., and J. H. Hamblen, Jr., of Warren, Cady, Hill & Hamblen, Detroit.

H. Z. Callender, formerly sales manager for Whitman & Barnes, continues in a similar capacity for the new company. Ralph Hammersley, formerly works superintendent for Whitman & Barnes, is chief engineer, and J. A. Dietrich, formerly superintendent for the Detroit company, continues as superintendent.

Plants operated by both companies prior to the merger are to be maintained for the present, but gradually the Akron factory activity and personnel will be moved to Detroit, where the executive offices have already been centered. Warehouses and branches maintained by Whitman & Barnes in New York and Chicago will be continued with Frank W. Oliver and M. J. Kearins respectively in charge. A new branch has been opened in Detroit in charge of A. B. Hall.

Metals Section of National Safety Council Announces Officers

The fifteenth annual congress of the National Safety Council, held at Detroit Oct. 25 to 29, attracted 5000 people drawn from more than 20 industrial divisions. The metals section was represented by a large delegation, and the following men were chosen to hold office during the ensuing business year: chairman, F. G. Bennett, director of safety, Buckeye Steel Castings Co., Columbus, Ohio; vice-chairman, J. A. Northwood, superintendent of safety, Bethlehem Steel Co., Johnstown, Pa.; secretary, E. G. Quesnel, safety engineer, Commonwealth Steel Co., Granite City, Ill.; chairman program committee, John P. Eib, supervisor of safety and labor, Illinois Steel Co., Joliet, Ill.; chairman bulletin committee, Frank H. Rowe, safety director, Wheeling Steel Corporation, Portsmouth, Ohio; chairman membership committee, H. G. Hensel, safety director, Youngstown Sheet & Tube Co., Chicago, and engineering representative, Earl F. Blank, safety director, Jones & Laughlin Steel Corporation, Pittsburgh. The executive committee comprises, in addition to the officers, the following men: A. C. Gibson, manager industrial relations, Spang, Chalfant & Co., Pittsburgh; T. H. McKenney, superintendent of labor and safety, Illinois Steel Co., South Chicago; John Oartel, chief of safety bureau, Carnegie Steel Co., Pittsburgh, and J. M. Woltz, safety director, Youngstown Sheet & Tube Co., Youngstown, Ohio.

Machinery Markets and News of the Works

SALES FALLING OFF

November Business in Machine Tools Shows Considerable Drop from October

Decline in Volume Attributed Partly to Lessened Activity Among Automobile Manufacturers

MACHINE tool sales so far this month in all of the important centers show a sharp decline from the October volume. It is estimated in Cincinnati that bookings this month may drop 30 to 40 per cent unless the remainder of the month brings increased buying. Automobile production in October fell much below the September rate, and this is in part responsible for the reduced demand for machine tools.

The Norfolk & Western Railroad is expected to make purchases shortly against a large list issued a few months ago. The Illinois Steel Co. has placed some orders and is likely to purchase the rest of its requirements, totaling large, within the next week or 10 days. The International Harvester Co. is again in the market for tools for its plant at Rock Island, Ill. A Waltham, Mass., watch company bought 10 bench lathes. A magneto company at Sidney, N. Y., bought two automatic milling machines. The Delco Light Co., Dayton, Ohio, ordered nine 14-in. and 16-in. lathes.

New York

NEW YORK, Nov. 23.

NOVEMBER machine tool business has fallen off, compared with October, and no marked improvement is looked for until the new year. One of the largest sales of the week was 10 bench lathes to the watch company at Waltham, Mass. The New York Central Railroad bought a 12-ft. pneumatic plate flanging clamp from the Niles-Bement-Pond Co. A Brooklyn shipyard bought a bolt heading machine and a Schenectady, N. Y., company bought a rotary milling machine. Other sales included the following: A die sinking machine to a Cortland, N. Y., company; two automatic milling machines to a magneto manufacturer at Sidney, N. Y.; a bench lathe to a typewriter plant at Hartford, Conn.; a bench milling machine to a Chicago stamping company; a 16-in. geared-head lathe to a Baltimore company; a 16-in. geared-head lathe to a hardware manufacturer in Chicago; a jig borer to a Milwaukee company, and a profiling machine to a Detroit refrigerating company.

R. Hoe & Co., 504 Grand Street, New York, manufacturers of printing presses, have awarded a general contract to the Wigton-Abbott Corporation, 552 West Twenty-third Street, for a one and two-story machine shop addition, 75 x 100 ft., to their branch plant at Dunellen, N. J., to cost $40,000 with equipment.

Charles Schneider, Sixty-fourth Street and Fifth Avenue, New York, architect, has filed plans for a three-story automobile service, repair and garage building, 81 x 100 ft., at 204-8 East Ninety-seventh Street, to cost about $115,000 with equipment.

The State Hospital Commission, Capitol Building, Albany, N. Y., is asking bids until Dec. 8 for a refrigerating plant for installation at the State hospital at Middletown. Specifications at the office of the Department of Architecture, Capitol Building, Albany, and Flatiron Building, New York.

The Board of Education, Park Avenue and Fifty-ninth Street, New York, plans the installation of a manual training department in its proposed five-story DeWitt Clinton high school on Mosholu Parkway, estimated to cost $3,000,000, for which bids will soon be asked on a general contract. William H. Gompert, Flatbush Avenue Extension and Concord Street, Brooklyn, is architect.

The New York, Ontario & Western Railroad Co., Grand Central Terminal, New York, has plans for a new car repair shop at its general works at Middletown, N. Y., to be one story, all steel, 80 x 355 ft., estimated to cost about $65,000 with equipment.

The Warren-Nash Motor Corporation, 229 West Sixty-fourth Street, New York, local representative for the Nash automobile, has awarded a general contract to the Turner Construction Co., for a six-story and basement service and repair building at Broadway and 133rd Street, to cost approximately $500,000 with equipment. Parker & Shaffer, 280 Madison Avenue, are architects.

The Inwood Consumers Ice Mfg. Co., Ninth Avenue and 213th Street, New York, has taken out a permit for its new plant, one story, 100 x 150 ft., to cost $100,000 with equipment. R. M. Delgado is president.

The City of New York, Department of Water Supply, Gas and Electricity, Municipal Building, will soon ask bids on revised plans for a pumping plant, 50 x 75 ft., at Richmond, S. I., to cost $60,000 with equipment.

The Sheffield Farms Co., 542 West Fifty-sixth Street, New York, is said to be planning the installation of a refrigerating plant in its proposed two-story creamery at Jamaica, L. I., estimated to cost $225,000.

The Bijou Lubricating Corporation, 250 West Fifty-fourth Street, New York, manufacturer of lubricating devices, has leased space in the recently completed building at Harris Avenue and Governor Place, Long Island City, totaling 55,000 sq. ft., of floor area, for a factory branch.

The Board of Public Works, City Hall Annex, Schenectady, N. Y., is completing plans for a two-story municipal service, repair and garage building, 60 x 200 ft., estimated to cost $115,000 with equipment. R. L. Bowen, 147 State Street, is city architect.

The Silent Hoist, Winch & Chain Co., Brooklyn, has removed from 302 McDougal Street to its new building at 762-72 Henry Street, where facilities will be provided for considerable increase in output.

The Borough Council, Mountain Lakes, N. J., plans the installation of pumping equipment with capacity of 500,000 gal. per day, in connection with the establishment of a new source of water supply in Denville Township, for which permission has just been secured.

The Hatfield Rubber Works, Inc., Hackettstown, N. J., manufacturer of cables and other insulating rubber goods, has begun excavations for a new plant at Hillside, N. J., where a 5-acre tract has recently been secured. The initial unit will be one story, 60 x 340 ft., to cost about $75,000 with equipment. It will give employment to 150 persons. Other units will be built later.

The Borough Commissioners, Hawthorne, N. J., are asking bids until Dec. 10 for a new pumping plant and machinery for the municipal waterworks. H. J. Harder is engineer. John A. Shea is borough clerk.

Fire, Nov. 14, destroyed the Essex County vocational school for boys at West Orange, N. J., with loss reported at $100,000 including equipment. Plans for a new structure will be considered in the near future. Headquarters of the school board are at 969 Broad Street, Newark, Robert O. Beebe, director.

The Cooper Hewitt Electric Co., 95 River Street, Hoboken, N. J., manufacturer of electric lamps, etc., has filed plans for its four-story addition, 80 x 200 ft., to cost about $275,000 with equipment. Lockwood, Greene & Co., 1 Pershing Square, New York, are architects and engineers.

The Simmons Machine Tool Corporation, main office Troy Road, Albany, N. C., has taken over the sale of the equipment at the machine and forge shop of the Pollak Steel Co., Cincinnati. Among the machines are about 25 lathes, ranging in size from 13 in. to 72 in.; forging machines, hydraulic presses, milling machines, radial drills, pipe machines, and cranes.

Buffalo

BUFFALO, Nov. 22.

THE Shearman Brothers Co., Inc., 25 Shearman Place, Jamestown, N. Y., manufacturer of furniture, has awarded a general contract to Charles Haas, Tenth and Monroe Streets, for a two-story addition, 55 x 150 ft., to cost $50,000 with machinery. A. B. Corcilius is architect.

The International Milling Co., Minneapolis, Minn., has asked bids on a general contract for its nine-story flour mill and grain elevator, 100 x 150 ft., at Catherine Street and the Buffalo River, Buffalo, to cost about $1,000,000 with machinery.

J. John Hassett, State Theater Building, State Street, Elmira, N. Y., is at the head of a project to construct and operate a four-story and basement automobile service, repair and garage building, to cost in excess of $150,000 with equipment.

The Last Oil Co., Olean, N. Y., operating in the Ferrington and Munger farm districts, has been acquired by new interests, headed by W. H. and T. F. Hungerford, and W. C. Dailey, Smethport, Pa., for $160,000. Plans are under consideration for expansion in operations and the installation of drilling machinery and accessory equipment.

Philadelphia

PHILADELPHIA, Nov. 22.

THE Sun Oil Co., Finance Building, Philadelphia, is considering the construction of a new storage and distributing plant in Hamilton Township, near Trenton, N. J., to cost in excess of $100,000 with equipment.

The Philadelphia Rapid Transit Co., 810 Dauphin Street, Philadelphia, has plans for a new operating building with steam power house on Forty-first Street, to cost $80,000.

The Board of Education, Keystone Building, Philadelphia, is planning the installation of a vocational training department in its proposed three-story junior high school at Chelten Avenue and Seventeenth Street, estimated to cost $1,000,000 with equipment, for which bids will soon be asked on a general contract; also in the three-story junior high school, 100 x 220 ft., at L and Luzerne Streets, to cost about $550,000. Irwin T. Catherine is architect for the board, address noted.

The factory project recently attributed in these columns to the Metal Coating Co., 497 North Third Street, Philadelphia, Richard L. Binder, in charge, will be an individual enterprise of Mr. Binder, address as noted, to be used for the manufacture of electrical equipment and supplies.

The Electrical Bureau, Department of Public Safety, George W. Elliott, room 215, City Hall, Philadelphia, director, is asking bids until Nov. 29 for a quantity of aerial cable, rings, hangers, guy wires, etc.

The Merchant & Evans Co., 2035 Washington Avenue, Philadelphia, manufacturer of metal ventilators, tinplate products, etc., has awarded a contract to Haversteck & Boothurck, 1505 Race Street, for a one-story extension to cost about $15,000.

The John Warren Watson Co., Twenty-fourth and Locust Streets, Philadelphia, manufacturer of automobile shock absorbers, has work nearing completion on a new one-story, sawtooth roof plant, 850 ft. long, at Bridesburg, and purposes to have the factory ready for occupancy early next year. It is understood that the present works will be removed to the new location, where expansion in manufacture will be carried out. The structure is owned by the Watson Realty Co., an affiliated organization.

The Bridge & Plaza Parking Garage Co., care of the Ballinger Co., Twelfth and Chestnut Streets, Philadelphia, architect and engineer, has awarded a general contract to Barclay White & Co., 1713 Sansom Street, for its five-story and basement service, repair and garage building at Camden, N. J., to cost about $450,000 with equipment.

I. W. Levin, 1011 Chestnut Street, Philadelphia, architect, will soon take bids on a general contract for a two-story automobile service, repair and garage building at 1418-20 South Seventh Street, to cost in excess of $100,000 with equipment.

The Golding Sons' Co., Trenton, N. J., feldspar operator, has plans for a new one-story grinding mill to cost close to $50,000 with equipment.

The Keystone Supply & Mfg. Co., 927 North Ninth Street, Philadelphia, pipe, etc., has awarded a general contract to Franklin M. Harris & Co., 1520 Parrish Street, for its one-story branch shop, 96 x 100 ft., at Camden, N. J. F. E. Hahn, Seventh and Chestnut Streets, Philadelphia, is architect.

The West York Ice & Cold Storage Co., West York, Pa., recently organized, will soon begin the erection of a new ice-manufacturing and cold storage plant to cost about $35,000. J. W. Sheffer and Harry C. Stitt, West York, head the company.

The Universal Sanitary Mfg. Co., New Castle, Pa., manufacturer of sanitary ware, has plans for an addition to double, approximately, the present capacity. A new tunnel kiln will be installed with other equipment.

Jacoby & Everett, Allentown, Pa., architects, have completed plans for a two-story automobile service, repair and garage building, 100 x 100 ft., to cost about $70,000 with equipment.

The Automatic Drive & Transmission Co., Gloucester, N. J., has acquired a factory on South Broadway, owned by Charles Horner, mayor, and heretofore devoted to airplane manufacture, which will be remodeled for a new plant.

The Botfield Refractories Co., Philadelphia, manufacturer of Adamant fire brick, Adamant fire brick cement and refractory furnace linings, has appointed the following new distributers for its products: At Buffalo, the Curtis Supply Co., Inc., Washington and Perry Streets; at Des Moines, Iowa, the Waldredh Supply Co., 707-711 Cherry Street; at Charleston, W. Va., the South Side Foundry & Machine Works; at Norfolk, Va., the Empire Machinery & Supply Corporation, 409-411 Water Street.

The Gwilliam Supply Co., 915 Front Street, Philadelphia, is inquiring for one four or six-spindle vertical tapping machine, fairly heavy, and one 4-in. Landis nipple machine.

New England

BOSTON, Nov. 22.

A FEW bright spots appeared in the machine tool market the past week, with new machinery dealers taking most of the business. Sales consisted mostly of single tools to users who have contemplated buying for many weeks. In the aggregate these did not exceed much more than a dozen, but compared with recent weeks is encouraging. Most of the used machinery houses the past week sold bench lathes, drills, shafting, pulleys, belting and hand presses. A screw machine of good size to a New Haven dealer was the most important local sale reported. The United States Cartridge Co., Lowell, Mass., has begun the transfer of equipment to the Winchester plant at New Haven. It will materially reduce its equipment and will offer surplus machines at private sale.

Small tools are selling relatively better than large ones, but even here a tendency is noted to curtail purchases until after the year-end inventories. Some of the New Departure Mfg. Co.'s Connecticut plants are taking inventories this week and other shops plan to do this work earlier than usual.

Herbert S. Cleverdon, 184 Boylston Street, Boston, engineer, is preparing plans for a 1000 car garage, four industrial units and a central heating and power plant to cost $3,000,000, to be erected on Dorchester Avenue, South Boston, for the Andrews Square Terminal Co., Inc. Frank A. Kamp, 53 State Street, Boston, heads the new project.

Plans have been completed for a one-story valve manufacturing plant with 75,000 sq. ft. floor space for the Grinnell Co., Inc., 260 Exchange Street, Providence, R. I. Plans are private.

William R. Walker, 49 Weybosset Street, Providence, architect, is taking bids on a two-story and basement junior high school at West Warwick, R. I. P. H. Quinn is chairman of the West Warwick school committee. There will be manual training departments.

Plans have been completed by L. S. Joslin, 339 Newbury Street, Boston, for six manufacturing units to be erected in Atlantic, Quincy, Mass., by the Norfolk Woodworking Co., 53 Wyman Road, Braintree. A. E. Bentham is in charge of the project.

A Massachusetts charter has been granted the Perkins Machine & Gear Co., Springfield, Mass., capitalized for $500,000 and 15,000 no par value shares to manufacture machinery and parts. Julian L. Perkins, West Springfield, is president.

The Crane Market

INQUIRY for overhead and locomotive cranes is still light, most of the present activity being on inquiries for single pieces of equipment that have been under quotation for several weeks. Among the overhead cranes expected to close shortly are two 5-ton hand power cranes and six chain blocks for the Phoenix Utility Co., 71 Broadway, New York. Dwight P. Robinson & Co., New York, have closed on four 5-ton and one 10-ton cranes and will probably inquire shortly for some small jib cranes and hoists. The New York Central Railroad, which has purchased seven locomotive cranes recently, one used crane, one Northwest crawl-tread crane, one Ohio, one Brownhoist, two Industrial and one Browning, is expected to buy one more crane at a later date.

Among recent purchases are:

Long Island Railroad, Jamaica, N. Y., a 25-ton, 70-ft. span gantry crane from the Niles-Bement-Pond Co.

Dwight P. Robinson & Co., New York, for the Chapman Valve Mfg. Co., Indian Orchard, Mass., one 5-ton, 47-ft. 3-in. span, one 5-ton, 50-ft. span, two 5-ton, 19-ft. 6-in. span and one 10-ton, 19-ft. 6-in. span cranes from an unnamed builder.

New York Central Railroad, a 25-ton locomotive crane, reported as awarded last week, went to the Browning Crane Co.

Central Railroad of New Jersey, a 25-ton gantry crane from an unnamed builder.

Eau Claire Sand & Gravel Co., Eau Claire, Wis., a 25-ton used Link-Belt locomotive crane from a crane builder.

E. W. Bliss & Co., Brooklyn, N. Y., a 15-ton, 8-wheel, used industrial locomotive crane from a crane builder.

D. C. Serber, Grand Central Terminal, New York, a 10-ton used crawl-tread locomotive crane from an unnamed dealer.

The Morton C. Tuttle Co., 862 Park Square Building, Boston, has been awarded a contract for an addition for the Brown Paper Mill Co., Monroe, La., for which motors and miscellaneous equipment are required. George F. Hardy, New York, is the engineer.

The Strand & Sweet Mfg. Co., Winsted, Conn., is preparing to occupy two additions to its wire manufacturing plant, having 13,600 sq. ft. of floor space, nearing completion. The original plant is operating day and night and is not accumulating stock. The capitalization was increased a short time ago from $100,000 to $250,000. The company contemplates further expansion next year.

The Firth-Sterling Steel Co., 85 West First Street, South Boston, has leased space in the new Statler Building, Park Square district, Back Bay.

The Eastern Mfg. Co., Inc., 1831 Pleasant Street, Fall River, Mass., has been organized with a capital stock of $25,000 to manufacture ignition cables for automobiles. Equipment has been installed and supplies purchased for the immediate future.

The Boston & Albany Railroad Co., South Station, Boston, has authorized plans for new repair shops at Worcester, Mass., including engine house and turntable, machine shop, coaling plant and auxiliary buildings, reported to cost in excess of $500,000 with equipment.

The Public Service Co. of New Hampshire, Manchester, N. H., has arranged for a bond issue of $3,150,000, a portion of the proceeds to be used for extensions and improvements.

The Eliot Street Garage Co., 13-15 Eliot Street, Boston, has filed plans for a new multi-story service, repair and garage building, to cost about $200,000 with equipment.

The Apponaug Co., Apponaug, R. I., will proceed with the construction of a two-story steam power house at its textile mill, 47 x 50 ft., estimated to cost $50,000 with equipment.

Ovens, power equipment, conveying and other machinery will be installed in the new plant to be erected at Hartford, Conn., by the Consolidated Baking Co., Hartford, to cost $225,000 with equipment.

The American Steam Gage & Valve Mfg. Co., 80 Federal Street, Boston, has plans for the immediate erection of a three-story addition estimated to cost $75,000 with equipment. Krokyn, Browne & Rosenstein, 220 Devonshire Street, are architects.

The Hart & Cooley Mfg. Co., New Britain, Conn., is being organized with a capital of $1,000,000 to take over and expand the manufacturing division of the Hart & Cooley Co., manufacturer of warm air registers, regulators and other equipment. The last noted company will continue to function as a holding organization. Norman P. Cooley, president Hart & Cooley Co., will also be head of the new organization.

The General Fire Extinguisher Co., Providence, R. I., has awarded a general contract to the C. I. Bigney Construction Co., 184 Washington Street, for a one-story addition to its plant at Auburn, R. I., 200 x 200 ft., to cost about $75,000.

The Sesamee Lock Co., Hartford, Conn., recently formed with a capital of $500,000 to manufacture patented combination locks, is operating in a portion of the plant of the Hartford Machine Screw Co., and contemplates expansion in output beginning in January. The company is also perfecting a new patented combination padlock and expects to go into commercial production of this specialty at an early date. A. G. Hatch is president.

The Goodyear Tire & Rubber Co., 61 Brookline Avenue, Boston, has awarded a general contract to the Prindiville Co., Framingham, Mass., for a four-story addition to its local factory branch, to cost close to $100,000. Headquarters are at Akron, Ohio.

The Beacon Oil Co., 111 Devonshire Street, Boston, has arranged for a bond issue of $3,000,000, a portion of the fund to be used for extensions and improvements in storage and distributing plants, including establishment of new plants. Richard B. Kahle is president.

Chicago

CHICAGO, Nov. 22.

FROM the viewpoint of the machine tool trade, November business still gives some promise of being good. Sales to date are lower than for October, but inquiries total large and are, for the most part, active. Orders recently placed by the Illinois Central are being held up temporarily. The International Harvester Co. is again in the market for tools for its Rock Island, Ill., tractor plant. The Illinois Steel Co. is now placing some of the larger equipment on its list issued early in the fall.

A local electrical equipment maker has bought a 14-in. x 6-ft. lathe and a machine screw manufacturer has placed a 16-in. x 8-ft. lathe. A manufacturer of heat regulators in St. Louis has added to his shop equipment a 14-in. x 6-ft. lathe. The Chicago Board of Education will close bids Nov. 26 on four 12-in. swing, 56-in. bed, motor-in-head lathes; two motor-driven floor grinders with two 8-in. x 1-in. wheels, and a 36-in., American or equal, band saw, complete with motor.

The Staley-Savage Mfg. Co., 417 South Campbell Avenue, Chicago, will build a new sheet metal shop at 1906 North Cicero Avenue.

The Illinois Central Railroad Co., 109 East Roosevelt Road, Chicago, will build a boiler house, 37 x 50-ft., to cost $13,500. F. R. Judd, 109 East Roosevelt Road, is architect.

J. O. Stoll, 1120 Lake Shore Drive, Chicago, is at the head of a project to construct and operate a four-story and basement automobile service, repair and garage building at 1029-35 North Clark Street, to cost about $200,000 with equipment.

The Emerson-Brantingham Corporation, Rockford, Ill., manufacturer of farming implements and machinery, will soon begin erection of a one-story foundry, 60 x 110 ft., for which a general contract has been let to O. C. Hitt, 1722 School Street.

The City Council, Traer, Iowa, has plans for a municipal electric light and power plant, to cost in excess of $23,000 with equipment.

The Public Service Co. of Northern Illinois, 72 West Adams Street, Chicago, has arranged for a bond issue of $10,000,000, a considerable portion of the fund to be used for extensions and improvements, including steel tower transmission lines. Samuel Insull is chairman of the board.

The Chicago Rapid Transit Co., 72 West Adams Street, Chicago, has plans for a one-story car repair shop at Niles Center, Ill., to cost about $300,000 with equipment. A. Gerber, address noted, is company engineer.

The Luley Abattoir Co., 567 North Cleveland Avenue, St. Paul, Minn., is completing plans for a new three-story

and basement cold storage and refrigerating plant, to cost $150,000 with machinery. A. F. Gauger, Exchange Bank Building, is architect.

The City Council, St. Cloud, Minn., is planning to ask bids soon for pumping equipment for the municipal waterworks. Louis P. Wolff, Globe Building, St. Paul, Minn., is engineer.

The McGraw Electric Co., Sioux City, Iowa, recently formed under Delaware laws to take over the local electrical equipment and engineering business of the McGraw Co., with branch at Omaha, Neb., and to consolidate a number of electric light and power properties, including the plants and systems of the Platte Valley Power & Light Co. and the Central West Public Service Co., is arranging for a note issue of $1,400,000, a portion of the fund to be used for the consolidation and for extensions and improvements. Max McGraw is president.

Fire, Nov. 15, destroyed a portion of the storage and distributing plant of the Holly Sugar Co., Swink, Colo., with loss reported at $600,000 including equipment. Headquarters are at Colorado Springs, Colo.

The New City Iron Works, 5401 South Western Avenue, Chicago, has awarded a general contract to John Gebhardt & Son, 179 West Washington Street, for a one-story extension, 105 x 165 ft., to cost about $27,000. Dovell & Metz, 307 South Michigan Avenue, are architects. Frank Moll is general manager.

The Hughes Electric Co., Bismarck, N. D., is planning for the construction of a new steam-operated electric generating station at Beulah, N. D., estimated to cost $200,000 with equipment. A transmission line will be built. It is expected to begin work in the spring.

The City Council, Waukegan, Ill., is asking bids up until Dec. 9 for a new pumping plant to cost $900,000. Henry A. Allen, 208 North Wells Street, Chicago, is engineer.

The Great Western Pattern & Mfg. Co., Galva, Ill., successor to the Wistrand Mfg. Co., will begin the manufacture of corn planters on Dec. 1. The company recently incorporated with a capitalization of $500,000. Dr. G. S. Barger and R. M. Meisinger are president and vice-president, respectively.

South Atlantic States

BALTIMORE, Nov. 22.

IN connection with additions to its Sparrows Point, Baltimore, plant, soon to be placed under way, the Bethlehem Shipbuilding Corporation is planning for the removal of the ship construction and ship repair departments from its Harlan works, Wilmington, Del., to this location. The company recently acquired about 12 additional acres near its Key Highway, Sparrows Point yard for expansion. It is understood that the Harlan plant will be used exclusively for car building and repair work in the future. The extension program at Sparrows Point is estimated to cost in excess of $1,000,000. J. M. Willis is general manager.

The Washington Suburban Sanitary Commission, 1420 New York Avenue, N. W., Washington, expects to ask bids in the spring for its proposed pumping station and filtration plant at Burnt Mills, Md., estimated to cost $500,000 with machinery. R. B. Morse, Hyattsville, Md., is engineer.

The chief of engineers, United States Army, Washington, is asking bids until Dec. 14 for two 75-kw. motor-generator sets with accessories, two starting compensators, switchboard and accessory equipment.

The Potomac Edison Co., Cumberland, Md., has arranged for a bond issue of $11,250,000, a portion of the proceeds to be used for extensions and improvements, including power station and transmission line construction.

The Diamond Crushed Stone Corporation, Asheville, N. C., care of Dawson Wylly, 322 West Eighty-ninth Street, New York, general manager, is reported to have plans under way for a new plant on property in the Kimberly section, recently acquired, to include the installation of quarrying machinery, rock-crushing equipment, cars, etc. David Kimberly is president.

The Board of Crisp County Commissioners, Cordele, Ga., has plans for a hydroelectric power development on the Flint River, for which a bond issue of $1,250,000 has been approved. The initial plant will have a capacity of about 20,000 hp. and will be ready for service in 18 months. A transmission system will be built.

The Commissioner of Public Works, Spartanburg, S. C., is asking bids until Dec. 7 for a steel standpipe or elevated steel tank for the municipal water system. The Solomon-Norcross Co., Candler Building, Atlanta, Ga., is engineer.

The C. H. Turner Mfg. Co., Statesville, N. C., manufacturer of sawmill machinery, is disposing of a preferred stock issue of $225,000, a portion of the proceeds to be used for expansion and to carry out the merger recently arranged of the C. H. Turner Foundry Co. and C. H. Turner Co.

The Snyder Hoist & Body Co., Jessup, Md., has leased a local building and will establish a plant for the manufacture of a patented truck body of sliding type. A. B. Cochrane is president.

The Georgia Power Co., Atlanta, Ga., recently formed with a capital of $3,000,000 to take over the plants and property of the Georgia Railway & Power Co., Milledgeville Lighting Co., East Georgia Power Co., and other utilities, is arranging for a stock issue of $2,000,000, a portion of the fund to be used for the consolidation and for extensions and betterments.

The Lingo Metal Works, Wilmington, N. C., has been making inquiries for a four-side planer and matcher, 8 to 12 in.

The Common Council, Crewe, Va., is considering the installation of pumping machinery in connection with a proposed municipal waterworks and sewage system, for which a bond issue of $185,000 has been arranged.

The Columbus Electric & Power Co., Columbus, Ga., will increase its capital from $9,750,000 to $11,750,000, a considerable part of the proceeds to be used for extensions and improvements, including proposed power development work.

The Carolina Power & Light Co., Raleigh, N. C., is said to be completing plans for the construction of a large hydroelectric generating plant on the Pigeon River, in the western section of the State, to cost in excess of $700,000 with transmission system. The company has work in progress on a power dam at Norwood, for hydroelectric power service.

The Hackley Morrison Co., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for an arbor press, about 75-tons capacity, one 1250 kva. turbo-generator, complete with exciter and accessories, two 200-kw. motor-generator sets complete with accessory equipment, one 100-hp. medium speed stationary steam engine, and two 75-hp. Scotch marine boilers.

Cincinnati

CINCINNATI, Nov. 22.

MACHINE tool sales continue their downward trend, and preliminary reports from leading local builders indicate that bookings in November will show a decrease of from 30 to 40 per cent compared with those in October, unless there is an unexpected spurt of business in the final week of the month. The decline is attributed partly to the lessened buying of equipment by automobile makers and partly to the usual falling off in orders as the end of the year draws near. With only a few notable exceptions sales have been confined to single machines. It is stated that the Norfolk & Western is about to make purchases against its large list of tools, while the Illinois Steel Co. is likely to close for its requirements in the next 10 days.

The Illinois Central has bought three No. 3 axle lathes, two 48-in. carwheel borers and five bolt cutters for its Paducah, Ky., shops. Other sales in the past week include a 32-in. shaper for a Pacific Coast fruit company, a cold saw for an eastern Pennsylvania engineering company, a milling machine for a Pacific Coast industrial manufacturer, a 22-in. drill for a Boston company, a 4-in. pipe machine for delivery to Buffalo, and a 24-in. drill for a company in New York State. A Milwaukee company has purchased a 96-in. x 40-ft. used planer.

The American Radiator Co., Springfield, Ohio, is considering plans for installation of equipment and for general improvements to be made early in 1927. J. B. Orbison is manager.

The Burch Plow Works Co., Crestline, Ohio, has sold its plow business to the Moore Plow & Implement Co., Greenville, Mich., and will devote its activities to the manufacture of soil pulverizers, seed cleaners and road making machinery.

Plans have been filed by the Cleveland, Cincinnati, Chicago & St. Louis Railroad Co., Cincinnati, for its new locomotive repair plant at Riverside, near Cincinnati, to cost $550,000 with equipment.

The Metallic Binding Co., Richmond Street, Painesville, Ohio, is reported to be planning a one-story addition, to cost in excess of $25,000 with equipment. Work will probably begin in the spring.

The Southern Railway System, Washington, is arranging for the construction of a mechanical coaling plant at Chattanooga, Tenn., estimated to cost $50,000.

The Common Council, Trenton, Ohio, contemplates the installation of pumping equipment in connection with a proposed municipal waterworks, for which a bond issue of $40,000 has been approved.

The Galion Metallic Vault Co., Galion, Ohio, has awarded a general contract to Henry Hocker, Galion, for a one-story addition, to cost about $20,000. Althous & Jones, Market Building, Mansfield, Ohio, are architects.

The Board of Education, Wyoming, Ohio, contemplates the installation of manual training equipment in its proposed three-story combined high and grade school, estimated to cost $375,000. Samuel Hannaford & Sons, Dixie Terminal Building, Cincinnati, are architects.

The State Highway Department, Columbus, Ohio, is asking bids on revised plans for a proposed one-story automobile service, repair and garage building, 50 x 102 ft., at New Philadelphia, Ohio, estimated to cost $80,000 with equipment. Herbert B. Briggs, Hartmann Ohio Building, Columbus, is architect.

Lewis H. Bull, Volunteer Building, Chattanooga, Tenn., architect, has plans under way for a two-story automobile service, repair and garage building, 60 x 290 ft., estimated to cost $85,000 with equipment.

The Equitable Gas Co., affiliated with the Louisville Gas & Electric Co., 311 West Chestnut Street, Louisville, plans the construction of a series of pipe lines in connection with the development of natural gas properties in eastern Kentucky, with main 20-in. diameter line, 160 miles long. The installation will include a number of compressor stations and auxiliary equipment and is estimated to cost in excess of $5,000,000. The Byllesby Engineering & Management Corporation, 231 South La Salle Street, Chicago, is engineer.

Cleveland

CLEVELAND, Nov. 22.

ALTHOUGH the volume of inquiry is holding up well, machine tool sales continue light and November business will show a falling off as compared with October. The Delco Light Co., Dayton, Ohio, during the week placed an order with a Cleveland dealer for nine 14-in. and 16-in. lathes. A local manufacturer sold two large turret lathes for shipment to the Pacific Coast. A Cleveland motor truck manufacturer purchased a deep hole drilling machine. While some inquiry is pending from Detroit, few machinery orders are coming at present from the automotive industry in that city.

The American Stove Co., Cleveland, Dangler Division, will erect a one-story building, 75 x 200 ft., to be used for a japanning room.

The Marion Steam Shovel Co., Marion, Ohio, is erecting a one-story, 45 x 105-ft. branch factory at Kansas City, Mo.

The Firestone Tire & Rubber Co., Akron, Ohio, will erect a five-story factory building. Wilbur Watson & Associates, 4614 Prospect Avenue, Cleveland, are the architects.

The Portage Tool Co., Kenmore, Ohio, contemplates the erection of a one-story factory, 50 x 150 ft.

The Ford Motor Co., Detroit, is taking bids for a one-story addition, 100 x 180 ft., to its assembly plant in Cleveland. Albert Kahn, Marquette Building, Detroit, is the architect.

Milwaukee

MILWAUKEE, Nov. 22.

ALTHOUGH machine tool builders have experienced a decline in new orders, there is considerable business in prospect, judging by the activity of inquiry, and an upward trend in bookings is looked for shortly. Meanwhile shops are keeping busy at or close to the recent peak of production and expect to maintain this rate until Jan. 1 or later. General industrial activity is well sustained and while there is a less insistent call for skilled labor among foundries and machine shops, no surplus has developed.

W. E. Karlem, 149 Liberty Avenue, Beloit, Wis., has let the general contract to Edwards & Sons Co., local builder, for erecting a $50,000 automotive sales and service building, 81 x 116 ft., part two stories and basement.

The Wilboken Mfg. Co., 404-406 Grove Street, Milwaukee, manufacturer of electric controlling devices and mechanical specialties, has purchased the property, 50 x 125 ft., adjoining its plant, for future expansion. It is considered likely that some new construction will be undertaken early in the spring. The present plant is 62½ x 100 ft., three stories. George A. Knaak is president and treasurer.

The Wausau Iron Works, Wausau, Wis., has added a night shift to its department manufacturing snow plows to handle orders from municipalities for highway clearing equipment.

Ole Arneson, 274 North Edwards Street, Kenosha, Wis., has let the general contract to J. J. Tully, 601 Exchange Building, for erecting a garage, sales and service building, 84 x 153 ft., part two stories and basement, estimated to cost $48,000. The architect is Kenneth White, Kenosha.

The Green Bay Barker Co., Green Bay, Wis., manufacturer of machinery, tools, etc., has changed its name to Green Bay Barker Machine & Tool Works to better designate the character of its activities.

The Butler Bin Co., Waukesha, Wis., is inquiring for a multiple punch for material ⅜ in. and heavier.

Pittsburgh

PITTSBURGH, Nov. 22.

MACHINE tool business is quiet, with purchases confined strictly to requirements that cannot be deferred. This is a seasonal condition, however, a general tendency being noted to avoid expenditures that may be made part of the budget of another year. The Westinghouse Electric & Mfg. Co. is still buying against its regular quarterly list and there is a fair number of single tool sales.

The Pennsylvania Railroad Co., Lewistown, Pa., has work in progress on extensions and improvements in its local shops. A number of departments will be removed from the Mifflin repair shops to Lewistown and operations concentrated at the latter place.

The Board of Education, College Hill, near Beaver Falls, Pa., plans the installation of manual training equipment in a proposed two-story and basement junior high school estimated to cost $150,000, for which bids will be asked on general contract early in December. W. G. Eckles & Co., Lawrence Savings & Trust Building, New Castle, Pa., are architects.

Fire, Nov. 14, destroyed a portion of the plant, including power house, of the Hunkers Sand & Stone Co., Hunkers, Pa., with loss estimated at $40,000 including equipment. Plans for rebuilding are under advisement.

The Eljer Co., Ford City, Pa., manufacturer of sanitary ware, with branch plant at Cameron, W. Va., is disposing of a bond issue of $550,000, a portion of the fund to be used for expansion. R. E. Crane is president.

The Shannopin Coal Co., Poland, Pa., has work under way on a new tipple to cost in excess of $65,000 with equipment. Construction has also been started on a new loading dock.

E. H. Morford & Co., Citizens' National Bank Building, Charleston, W. Va., have inquiries out for one or more 10-ton capacity tractors, crawler type; also a number of hopper-type dump cars, 36-in. gage, each 4 to 5 yd. capacity.

The Guardian Coal & Oil Co., Eagle, W. Va., has acquired about 320 acres of additional coal lands in Webster County, and is reported planning the installation of power equipment and mining machinery for early development of a portion of the tract. The company has recently started operations at its initial plant unit.

The Board of Public Education, Fulton Building, Pittsburgh, has awarded a general contract to E. H. Canon, Jenkins Arcade, for its proposed two and three-story Herron Hill High School, reported to cost $1,000,000 with equipment, including manual training division.

Gulf States

BIRMINGHAM, Nov. 22.

PLANS are being arranged by the Phillips Petroleum Co., Bartlesville, Okla., for a new gasoline refinery at Breckenridge, Tex., with initial capacity of about 2500 gal. per day, to cost in excess of $250,000 with equipment.

The Houston Lighting & Power Co., Houston, Tex., has issued bonds for $2,000,000, a portion of the proceeds to be

used for extensions and improvements, including transmission line construction. The company is operated by the Electric Bond & Share Co., 71 Broadway, New York.

The D. D. Wessels & Son Co., 1635 East Euclid Street, Detroit, manufacturer of electric water heaters and kindred products, has leased property at New Orleans, and contemplates the early establishment of a branch plant.

The Atlantic Coast Line Railway Co., Wilmington, N. C., has taken out a permit for the erection of its new locomotive repair shops at St. Petersburg, Fla., estimated to cost $50,000 with equipment. J. E. Willoughby is chief engineer.

The City Council, Denton, Tex., is said to be planning an early call for bids for a gas-operated engine for use at the municipal waterworks. H. T. Brewster is superintendent.

The Simms Petroleum Co., Dallas, Tex., has arranged for a note issue of $3,431,500, a portion of the proceeds to be used for expansion and betterments. It has work under way on a new refinery at Smackover, Ark., and plans to have the initial unit ready for service soon. Thomas W. Streeter is chairman of the board.

The San Angelo Water, Light & Power Co., San Angelo, Tex., is having plans prepared by Sargent & Lundy, 72 West Adams Street, Chicago, consulting engineers, for its new electric generating station at Lake Concho, to cost about $750,000 with machinery. Extensions will be made in transmission system.

The City Council, Birmingham, will soon ask bids for a new municipal automobile service, repair and garage building, two stories, 140 x 150 ft., to cost $85,000 with equipment. D. O. Whilden, 515 North Twenty-first Street, is architect.

The Neptune Oil Co., Nunn Building, Amarillo, Tex., has tentative plans for a new gasoline refinery to cost about $70,000 with equipment. Frederick L. Brimi is head.

The City Council, Abilene, Tex., plans the installation of pumping machinery in connection with extensions in the municipal waterworks, using Lake Abilene as a source of additional supply. A bond issue of $500,000 is being arranged.

The Sugarland Industries, Inc., Sugarland, Tex., has begun the construction of an addition to its local refinery and will install machinery to increase the capacity from 1,000,000 to 1,500,000 lb. per day.

The Polk County Board of Public Instruction, Lakeland, Fla., plans the installation of manual training equipment in its new local high school estimated to cost $250,000, for which superstructure will soon begin. E. C. Hosford, Smith-Hardin Building, is architect.

The Central Louisiana Power Co., Hammond, La., is arranging an expansion program to cost about $1,000,000 during the next six months, including extensions in power equipment and construction of additional transmission lines.

The Midget Lantern Works, Jackson, Miss., has been organized with an authorized capital stock of $20,000 and intends to build a factory for the manufacture of lanterns. S. E. Turk is president of the company and M. Spiers, secretary. J. A. Teat, Texas Building, Jackson, Miss., is attorney.

St. Louis

ST. LOUIS, Nov. 22.

THE Arkansas Light & Power Co., Pine Bluff, Ark., is reported to be planning the construction of a hydroelectric generating plant on the White River, near Cotter, Ark., to cost in excess of $5,000,000 with transmission system.

The Straley-White Machine Works, Stuttgart, Ark., has plans for a new one-story machine shop, 75 x 140 ft., to cost $50,000 with equipment.

The Gasco Pump & Burner Mfg. Co., 902 East First Street, Tulsa, Okla., has plans for a one-story machine shop, 55 x 95 ft.

Fire recently damaged a portion of the foundry of the Kilpatrick & Sons Foundry Co., Bulwer Street and Carrie Avenue, St. Louis. An official estimate of loss has not been announced. The damage will be replaced.

The Wolf Creek Sand & Gravel Co., 1680 Arcade Building, St. Louis, now establishing a new plant in the vicinity of Delight, Ark., is planning the early purchase of equipment, including a 16-ton saddletank locomotive, 36-in. gage. John E. Schwarz is secretary.

The Common Council, Shawnee, Okla., plans the installation of pumping equipment in connection with a proposed municipal waterworks, for which a $600,000, bond issue is being arranged. E. T. Archer & Co., New England Building, Kansas City, Mo., is engineer.

Woodward & Co., 808 North Twelfth Street, St. Louis, are installing additional equipment in their plant for the manufacture of electric fixtures, including metal-working tools, etc. The company plans to purchase metal stampings, stamped metal bodies for fixtures and affiliated specialties.

The Empire Refineries, Inc., Tulsa, Okla., is reported to be planning to rebuild the portion of its petroleum refinery at Cushing, Okla., destroyed by fire Nov. 16, with loss reported in excess of $350,000 including equipment.

The Dixie Machinery Mfg. Co., 3665 Market Street, St. Louis, has awarded a general contract to the W. C. Harting Construction Co., International Life Building, for a one-story machine shop, to cost close to $100,000 with equipment.

J. W. Williams & Son, Inc., Sheridan, Ark., has plans for rebuilding its lumber and woodworking plant recently destroyed by fire, and will install new equipment, including stationary engines, air compressor, etc.

The Standard Turbine Corporation, Scio, N. Y., has opened a branch office at 1605 Chemical Building, St. Louis. F. E. Bausch is in charge.

The Missouri Pacific Railway, St. Louis, is in the market for a 90-in. journal turning and quartering machine.

The Western Iron & Foundry Co., Wichita, Kan., is in the market for a jaw riveter, capacity 1 in., 10-in. cylinder.

Detroit

DETROIT, Nov. 22.

NEGOTIATIONS have been completed by the H. J. Hunt Show Case Co., 5084 Lorain Avenue, Detroit, for the purchase of the plant of the Fulton Mfg. Co., Bay City, Mich., and a new plant will be established here. The company is understood to be planning to remove the Detroit works to this location. It has also acquired factory property at North Baltimore, Ohio, and will establish a new branch at that place.

The March Automatic Irrigator Co., 915 West Western Avenue, Muskegon, Mich., manufacturer of irrigation machinery, has awarded a general contract to George Lather & Sons, Traverse City, Mich., for a new one-story and part basement plant, 60 x 200 ft., to cost $35,000 with equipment. Vanderwest & Child, Montgomery Building, are architects.

The Wayne Motor Car Co., Detroit, recently organized, is said to be contemplating the early establishment of a plant for the manufacture of a new automobile, six-cylinder, Knight motor type, to sell for about $1,000. The company is headed by John A. Nichols, Jr., president, for the past ten years connected with the Dodge Brothers Co., Detroit; D. R. Wilson, Wilson Foundry & Machine Co., Pontiac, Mich.; and R. H. Allen, also previously connected with the Dodge Brothers Co. John N. Willys, head of the Willys-Overland Co., Toledo, Ohio, is interested in the new company.

The City Council, Detroit, plans the construction of a series of pumping plants in connection with the installation of a proposed sewage system in the east side district, with a large central pumping station leading to the present Connors Creek sewage system. The entire project is estimated to cost $14,300,000. Harrison P. Eddy, 14 Beacon Street, Boston, is engineer.

The Board of Education, High School Building, Detroit, plans the installation of manual training equipment in its proposed new senior high school at Royal Oak to cost about $850,000, for which bids will soon be asked on a general contract. F. D. Madison, First State Bank Building, Royal Oak, is architect.

The Electric Refrigeration Corporation, Detroit, operating the Kelvinator and Nizer companies, and the Leonard Refrigerator Co., Grand Rapids, Mich., is arranging a bond issue of $2,000,000, a considerable portion of the fund to be used for expansion at the Detroit and Grand Rapids units, work on which has been started.

The Goldsmith-Ely Co., 148 South Jackson Street, Jackson, Mich., operating an electric battery works, will build a new one-story and basement plant, 55 x 108 ft., to cost about $25,000 with equipment. J. R. Graf, Rogers Building, is architect.

Indiana

INDIANAPOLIS, Nov. 22.

THE Schwitzer & Cummins Co., 1125 Massachusetts Avenue, Indianapolis, manufacturer of automobile parts, has awarded a general contract to the Robert Berner Structural Steel Co., local, for a one-story addition, 200 x 300 ft., to cost about $70,000 with equipment.

The Fisher Sash & Door Co., Whiting, Ind., is considering the early rebuilding of the portion of its plant destroyed by fire Nov. 10, with loss reported in excess of $250,000 with machinery.

The Board of Education, Attica, Ind., is considering the installation of manual training equipment in its proposed

two-story and basement high school estimated to cost about $175,000, for which bids will be asked on a general contract early in January. Johnson, Miller, Miller & Yeager, 30 North Fifth Street, Terre Haute, Ind., are architects.

The Stout-Smith Trust, Salem, Ind., manufacturer of radio cabinets, etc., is arranging for the early erection of a one-story addition to cost in excess of $45,000 with equipment.

The Moore Brothers Steel Furniture Co., Indianapolis, has plans for a new four-story plant, 65 x 67 ft., to cost in excess of $75,000 with equipment. J. C. Moore is head.

Fire, Nov. 13, destroyed a large unit of the former plant of the Emerson-Brantingham Co., Columbus, Ind., manufacturer of farming implements and machinery, destroying considerable equipment of the company soon to be shipped to its plant at Rockford, Ill., and a portion of the works of the Vacuum Cotton Harvesting Co., manufacturer of machinery, occupying part of the unit. The last noted company plans rebuilding its plant. The total loss is reported at close to $100,000 with equipment.

The Peerless Foundry Co., 1853 Ludlow Street, Indianapolis, has awarded a general contract to W. A. Sides, 121 Garfield Street, for its one-story addition, 67 x 85 ft., to cost about $35,000.

The Wangelin-Sharp Co., 443-65 Virginia Avenue, Indianapolis, operating an automobile works, is having plans drawn for a second story addition to its one-story service, repair and garage building, 92 x 106 ft., to cost approximately $50,000 with equipment.

The Corcoran Mfg. Co., 217 West Tenth Street, Indianapolis, manufacturer of screw machine products, hardware specialties, "Speedway" skooters, L. A. Corcoran, president, whose purchase of a factory at Washington, Ind., was recently referred to in this column, writes that it has not rounded out its decisions as to plans with respect to the new factory.

Pacific Coast

SAN FRANCISCO, Nov. 17.

PROPERTY at Berkeley, Cal., has been acquired by the B. F. Sturtevant Co., Hyde Park, Boston, manufacturer of mechanical draft equipment, turbo-blowers, etc., as a site for a proposed branch plant, to cost about $100,000 with equipment.

The Turlock Irrigation District, Turlock, Cal., has called a special election on Dec. 1 to approve a bond issue of $514,000, the proceeds to be used for the installation of additional generating equipment at the Don Pedro hydroelectric generating plant now under way.

The Idaho Power Co., Boise, Idaho, has plans under way for extensions and improvements in its hydroelectric generating station at American Falls, Idaho, including the installation of two 6000-kw. units and auxiliary equipment, to cost close to $1,000,000. Extensions will be made in transmission lines. H. L. Singer is chief engineer.

The Amalgamated Sugar Corporation, Ogden, Utah, is said to be considering plans for the construction of a new beet sugar refinery at Missoula, Mont., to include power plant, machine shop and accessory mechanical buildings, estimated to cost in excess of $1,000,000 with equipment.

The Crane Co., 301 Brannan Street, San Francisco, with headquarters at 836 South Michigan Avenue, Chicago, has awarded a general contract to the J. S. Sampson Co., Monadnock Building, San Francisco, for a three-story factory branch, to cost $100,000 with equipment. Lewis P. Hobart, Crocker Building, is architect.

The Los Angeles Park Department, Equitable Building, Los Angeles, has completed plans for a one-story repair and equipment building, to cost $40,000 with equipment.

The DeSanno Foundry & Machine Co., 2941 East Twelfth Street, Oakland, Cal., has acquired additional property and plans the construction of a new one-story foundry, to cost $30,000 with equipment. It is purposed to erect additional buildings later.

The Cady Lumber Corporation, Flagstaff, Ariz., with branch mill at McNary, Ariz., is disposing of a bond issue of $2,000,000, a portion of the fund to be used for expansion and improvements in mills.

H. F. Samuels and associates, care of Cotton & Wilson, Idaho Falls, Idaho, consulting engineers, have plans under way for a proposed hydroelectric generating station in the Teton Basin section, to cost in excess of $250,000 with equipment. A transmission system is proposed.

The Yakima Fruit Growers' Association, Yakima, Wash., has authorized plans for a new cold storage and refrigerating plant in the Yakima Valley district, to cost in excess of $200,000 with equipment. It is also purposed to construct a similar plant at Zillah, Wash., to cost close to $150,000 with machinery.

The Boeing Airplane Co., Seattle, has completed additions to its plant and is now ready to produce commercial aircraft. P. G. Johnson is president.

The city of Seattle will shortly ask bids on the building of a municipal fire boat, estimated to cost $200,000. It will be 123½ ft. long, with 27-ft. beam and a speed of 14 knots, and will throw 12,000 gal. of water per min. from six centrifugal pumps. The vessel will be triple-screwed, of steel construction, and will be equipped with a telescoping 42-ft. fire-fighting tower.

The Southwest Foundry & Machine Co., 1481 Water Street, Long Beach, Cal., has been incorporated with a capital stock of $50,000 to make gray iron castings and do general jobbing and machine work. It has taken a long time lease on the foundry of the Craig Shipbuilding Co., Long Beach, and is operating two cupolas with a capacity of 25 tons daily. Officers are C. J. Flannery, president; F. W. Judson, vice-president, and J. C. Baudin, secretary and treasurer.

The Seattle office of the Minneapolis Steel & Machinery Co., in charge of P. E. Lattner, will be closed Dec. 1, Mr. Lattner going with the Wallace Bridge & Structural Steel Co. of that city. The Seattle territory will be taken care of from the Great Falls, Mont., and Salt Lake City offices of the Minneapolis Steel & Machinery Co.

Canada

TORONTO, Nov. 22.

WHILE demand for machine tools in this market is from widely scattered sources, the general volume of sales is good and exceeds that for the corresponding period last year. Inquiries are also better and it is believed that many now before the trade will shortly turn into actual business. The prospective demand for tools is on a much better footing than it has been for some time. The automotive industry is not buying as freely as earlier in the year, but dealers report a steady flow of replacement orders from this source, with a good call also from garages and automobile repair plants.

The Canadian National Railways recently placed a small list of tools for its new works at Toronto and it is expected that other lists in this connection will follow immediately. Small tools are in good demand from many parts of the Dominion.

The Skinner Co., Ltd., Gananoque, Ont., manufacturer of automobile hardware, etc., has started work on a $50,000 addition to its plant. Some contracts are still to be placed, including machinery.

The Canada Cement Co., Lakefield, Ont., is building a new plant.

The International Fibre Board Co., Bay Street East, Midland, Ont., has awarded general contract to McFarlane, Pratt & Hanley, Wharf Street, for the erection of main factory building in connection with a proposed plant to cost $125,000.

The Sangamo Electric Co., 183 George Street, Toronto,

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manufacturer of electric meters, etc., has started work on new plant to cost $35,000.

The Fraser Co., Campbellton, N. B., proposes to start work next spring on the erection of a paper mill with a daily capacity of 200 tons.

Preliminary work has been started by the St. Regis Paper Co., 30 East Forty-second Street, New York, on the construction of a pulp and paper mill at Cap Rouge, Que., to cost $1,000,000. Bids will be called for a general contract for mills by A. P. McKinnon, Montreal representative, Trust Building, Place d'Armes, Montreal, next spring.

The International Paper Co., Ltd., Sussex Street, Ottawa, Ont., and 100 East Forty-second Street, New York, contemplates the construction of paper mills at Deschenes-South Hull, Que., to cost approximately $4,000,000.

The Canada Iron Foundries, Ltd., St. Maurice Street, Three Rivers, Que., propose to build an addition to cost approximately $1,000,000. Plans are being prepared by the company's staff.

M. McCormick, Grand 'Anse, Que., is preparing plans for the erection of a power house to cost $60,000.

The North Shore Power Co., Ltd., Three Rivers, Que., has started work on a $25,000 addition to its plant.

Western Canada

L. E. Fisher, Ardath, Sask., is in the market for a 25-kva. generator, switchboard and transformers.

Plans are being prepared for the construction of pulp and paper mills at Prince George, B. C., estimated to cost $30,000,000. Wood, Gundy & Co., 36 King Street West, Toronto, are interested in the project.

Foreign

A COMPANY at Geeveston, Huon district, Southern Tasmania, has plans under way for an experimental paper and pulp mill on local site, estimated to cost about $150,000 with machinery, to operate on a 1-ton production basis. The structure is preliminary to a large unit for such manufacture in this section. Information at the office of the Bureau of Foreign and Domestic Commerce, Washington, reserved information Australia 35X; also, at the American Consulate, Melbourne, Australia, J. B. Foster, assistant trade commissioner.

Under the direction of the Madras Government, Madras, India, plans are being arranged for the construction of a hydroelectric generating plant on the Pykara River, at Pykara, the summer seat of the Government. A power dam 164 ft. high will be built, and reservoir for impounding 4,000,000 cu. ft. of water. It is expected to require two years for completion. A smaller similar project will also be carried out on the Moyar River. Both stations, with transmission lines, are estimated to cost upward of $5,000,000 Lord Goschen, Governor of Madras, is at the head of the enterprise.

A company at Palizada, Mexico, has plans for the construction of a new lumber plant at Camp Salitre, to include a sawmill, one-story planing mill, 150 x 450 ft., and one-story box-manufacturing plant, 90 x 350 ft. Information at the office of the Bureau of Foreign and Domestic Commerce, Washington, reserved information Mexico No. 44032; also at the office of the United States commercial attaché, Mexico City.

According to a statement of the Amtorg Trading Corporation, 165 Broadway, New York, official purchasing agent for the Russian Soviet Government, the Supreme Council of National Economy of the Soviet Union is arranging for expenditures for local industries totaling 900,000,000 rubles (about $450,000,000) during the fiscal year 1926-1927. A fund of 488,900,000 rubles (about $244,450,000) will be used for new equipment purchases, and of this appropriation, 277,900,000 rubles ($138,950,000), will be expended in the metal-working industries; 148,900,000 rubles ($74,450,000), will be directed to the mining industries, including new machinery, etc.; 132,000,000 rubles ($61,000,000) for the oil industry; and 31,300,000 rubles ($15,650,000) for the paper-making industry. In addition, a large sum will be used for electric power development, construction of generating stations and transmission lines.

Industrial Finance

Stockholders of the Mystic Iron Works, Everett, Mass., have authorized an increase in the company's capitalization from $5,000,000 to $6,000,000. The new 10,000 shares of a par value of $100 are to be sold for cash at par at the discretion of the board of directors. Daily production of the company's Everett, Mass., stack is being slowly increased, recent runs being 480 tons and higher.

THE LAST WORD

(Contributed by the Reader Service Department of the Iron Age Publishing Co.)

Edward T. Meredith's plan for agricultural relief by establishing *minimum* farm prices is so full of holes that it resembles a sieve. It's a heads I win, tails you lose proposition. He does not advocate *fixed* prices. His idea is better than that—for the farmers.

One-way prices, always up but never down, are what the Meredith plan advocates. If the law of supply and demand dictates a rise, fine! Up go prices. But if the l. of s. and d. points down, immediately the minimum prices come into play.

The farmer's customers should at least get an even break.

—

"Such a plan," says Mr. Meredith, "puts agriculture upon a business basis by giving the farmer an opportunity before planting to judge whether or not he can afford to produce these crops, rather than finding out at harvest time that the price is lower than his cost of production."

Mr. Meredith is guilty of understatement. His plan would put agriculture on *far better than a business basis*. No one can blame him for wanting to take the gambling element out of the farming business. We know of manufacturers in at least 317 diversified lines who would welcome a plan which would enable them to know ahead of time whether they were going to make a profit.

—

In some branches of the German iron and steel industry married men are paid *one-quarter of a cent per hour* more than single men.

Is there any man so sour on matrimony that he can resist so bountiful an inducement?

—

FAMOUS FRIENDS

Welding and Riveting
Stampings and Castings
Structural Steel and Reinforced Concrete

Send in your candidates for the Damon and Pythias contest.

—

The ills of the foundry industry have been diagnosed by Harry D. Neach, of Boston, who has made an extensive survey. They are not unique ills, just the common ordinary economic aches of too much plant capacity and too little profit.

The way to make money in the jobbing foundry business is to get out of it, suggests Mr. Neach. Market a product of your own, he recommends. ". . . develop some product which has a substantial market. . . . establish a business which competition, to any large extent, can not destroy."

Do we hear one thousand job foundrymen yell unanimously, "FOR INSTANCE?" A. H. D.